

CHAPTER-1: LARGE NUMBER AND ROMAN NUMBERS

Assessment Time 1.1

1.	Numerals	Crores		Lakhs		Thousands		Ones		
		TC	C	TL	L	TTh	Th	H	T	O
a.	478253				4	7	8	2	5	3
b.	8106284			8	1	0	6	2	8	4
c.	6718521			6	7	1	8	5	2	1
d.	4982743			4	9	8	2	7	4	3
e.	5896324			5	8	9	6	3	2	4
f.	81963402		8	1	9	6	3	4	0	2
g.	71696342		7	1	6	9	6	3	4	2
h.	90628514		9	0	6	2	8	5	1	4

- 4,78,253: Four lakh seventy-eight thousand two hundred fifty-three.
- 81,06,284: Eighty-one lakh six thousand two hundred eighty-four.
- 67,18,521: Sixty-seven lakh eighteen thousand five hundred twenty-one.
- 49,82,743: Forty-nine lakh eighty-two thousand seven hundred forty-three.
- 58,96,324: Fifty-eight lakh ninety-six thousand three hundred twenty four.
- 8,19,63,402: Eighty crore nineteen lakh sixty-three thousand four hundred two.
- 7,16,96,342: Seven crore sixteen lakh ninety-six thousand three hundred forty-two
- 9,06,28,514: Nine crore six lakh twenty-eight thousand five hundred fourteen.

- 4,85,945
 - 47,49,763
 - 7,94,87,904
 - 6,64,07,096

2 Key Math-05

3. a. $4\ 5\ 2\ 8\ 6\ 3\ 7$
-
- b. $9\ 1\ 7\ 2\ 8\ 5\ 6$
-
- c. $3\ 7\ 2\ 8\ 5\ 9\ 2$
-
- d. $6\ 7\ 2\ 3\ 4\ 5\ 6\ 4$
-

4. a. $5\ 4\ 6\ \boxed{3}\ 2\ 8\ 9$
-
- $3\ 0\ 0\ 0$

So, place value of 3 is **3000**.

- b. $543\boxed{2}963$

Place value of 2 is **2000**.

- c. $10\boxed{6}3824$

Place value of 6 is **60000**.

- d. $67290\boxed{6}72$

Place value of 6 is **600**.

5. a. $5\ 8\ 9\ 6\ 2\ 7\ 3$



So, sum of these place values = $90000 + 800000$
 $= 890000$

- b. $4\ 0\ 6\ 3\ 2\ 8\ 5$



So, sum of these place values = $3000 + 4000000$
 $= 4003000$

c. 4 5 3 9 6 2 8

600
30000

So, sum of these place values = $600 + 30000$
 $= 30600$

d. 5 3 2 7 0 6 8 3

70000
200000

So, sum of these place values = $70000 + 200000$
 $= 270000$

6. a. 5 3 2 7 6 8

700
30000

So, difference of these place values = $30000 - 700$
 $= 29300$

b. 5 4 6 8 9 3 5

900
400000

So, difference of these place values = $400000 - 900$
 $= 3999100$

c. 3 4 5 2 6 3 7

600
50000

So, difference of these place values = $50000 - 600$
 $= 49400$

d. 5 3 8 4 6 3 9 4

6000
800000

So, difference of these place values = $800000 - 6000$
 $= 794000$

7. a. The face value of 9 in 6724965 is 9
b. The face value of 1 in 6728143 is 1.
c. The face value of 6 in 80762853 is 6.
d. The face value of 0 in 9076285 is 0.

4 Key Math-05

8. a. $7286345 = 7 \text{ ten lakhs} + 2 \text{ lakhs} + 8 \text{ ten thousands} + 6 \text{ thousands} + 3 \text{ hundreds} + 4 \text{ tens} + 5 \text{ ones}$
 $= 7000000 + 200000 + 80000 + 6000 + 300 + 40 + 5$
- b. $9160285 = 9 \text{ tens lakhs} + 1 \text{ lakh} + 6 \text{ ten thousands} + 0 \text{ thousand} + 2 \text{ hundreds} + 8 \text{ tens} + 5 \text{ ones}$
 $= 9000000 + 100000 + 60000 + 200 + 80 + 5$
- c. $19163289 = 1 \text{ crore} + 9 \text{ ten lakhs} + 1 \text{ lakh} + 6 \text{ ten thousands} + 3 \text{ thousands} + 2 \text{ hundreds} + 8 \text{ tens} + 9 \text{ ones}$
 $= 10000000 + 9000000 + 100000 + 60000 + 3000 + 200 + 80 + 9$
- d. $50632857 = 5 \text{ crores} + 0 \text{ ten lakh} + 6 \text{ lakhs} + 3 \text{ ten thousands} + 2 \text{ thousands} + 8 \text{ hundreds} + 5 \text{ tens} + 7 \text{ ones}$
 $= 50000000 + 600000 + 30000 + 2000 + 800 + 50 + 7$
9. a. $5 \text{ lakhs} + 8 \text{ ten thousands} + 9 \text{ thousands} + 8 \text{ hundreds} + 5 \text{ tens} + 7 \text{ ones} = 5,89,857$
- b. $7 \text{ ten lakhs} + 9 \text{ lakhs} + 6 \text{ ten thousands} + 9 \text{ thousands} + 6 \text{ hundreds} + 0 \text{ tens} + 8 \text{ ones} = 79,69,608$
- c. $5 \text{ ten lakhs} + 8 \text{ lakhs} + 5 \text{ ten thousands} + 7 \text{ thousands} + 8 \text{ hundreds} + 9 \text{ tens} + 6 \text{ ones} = 58,57,896$
- d. $4 \text{ crores} + 8 \text{ ten lakhs} + 9 \text{ ten thousands} + 8 \text{ thousands} + 6 \text{ hundreds} + 5 \text{ tens} + 7 \text{ ones} = 4,80,98,657$
10. a. 10,000 b. 9,99,999 c. 70,000 d. 0

Critical Thinking Skills

$$\text{Digit at thousand place} = \frac{10}{2} = 5$$

$$\text{Digit at hundred place} = 9$$

$$\text{Digit at tens place} = 6$$

$$\text{Digit at ones place} = 2$$

So, number is **5962**.

Assessment Time 1.2

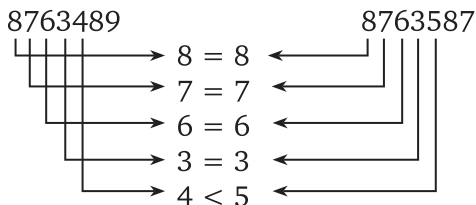
1. a. 3728569 is a 7 digit number whereas 10638564 is a 8 digit number. So, $3728569 < 10638564$
- b. Both numbers have same digit number.
 So, we compare their corresponding digits.

$$\begin{array}{ccc} 9728563 & & 8764594 \\ \underbrace{\hspace{1.5cm}} & \rightarrow 9 > 8 \leftarrow & \underbrace{\hspace{1.5cm}} \end{array}$$

So, $9728563 > 8764594$

- c. Both numbers have same digit numbers.

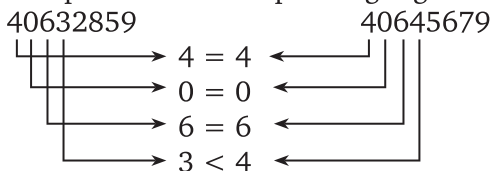
So, we compare their corresponding digits.



So, $8763789 < 8763587$

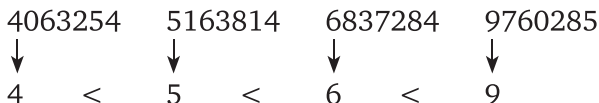
- d. Both number have same digit numbers.

So, we compare their corresponding digits.



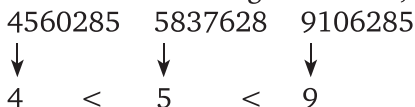
So, $40632859 < 40645679$

2. a. All number is a 7-digit numbers. We will compare them.



So, ascending order of given numbers is 4063254, 5163814, 6837284, 9760285

- b. 4560285, 9106285, 5837628 is a 7-digit number and 72036284 is a 8-digit numbers, so we will compare.



So, ascending order of given numbers is 4560285, 5837628, 9106285, 72036284

- c. 7163284 and 9237654 are 7-digit number 41063284 and 81906324 are 8-digit number.

So, we will compare

7163284	9237654	41063284	81906324
↓	↓	↓	↓
7	<	9	4
		<	8

So, ascending order of given numbers is 7163284, 9237654, 41063284 and 81906324.

- d. We will compare the number.

$$7281324 < 54379625 < 54628137 < 67281632$$

So, the ascending of the number is 7281324, 54379625, 54628137 and 67281632

3. a. 876342 is a 6-digit number and 3762457, 4563285, 9063485 are 7-digit numbers.

So, we will compare

$$9063485 > 4563285 > 3762457$$

So, the descending order is 9063485, 4563285, 3762457, 876342.

- b. 90632581 and 45602837 are 8-digit numbers and 6123428 and 1062897 are 7-digit numbers.

So, we will compare

$$90632581 > 45602837 \mid 6123428 > 1062897$$

So, the descending order of the number is 90632581, 45602837, 6123428 and 1062897.

- c. 51628372 and 72856163 are 8-digit number and 4056327 and 9285632 are 7-digit number.

So, we will compare.

$$72856163 > 51628372 > 9285632 > 4056327$$

So, the descending order is 72856163, 51628372, 9285632 and 4056327.

- d. We will compare the numbers.

$$81063219 > 37062852 > 2062372 > 762854.$$

So, the descending order of the number is 81063219, 37062852, 2062372 and 762854.

4. a. On arranging the given digits in descending order, we get.
9876510

So, the largest number is 9876510.

- b. On arranging the given digits in descending order, we get,

98765420

So, the largest number is 98765420.

- c. On arranging the given digits in descending order, we get,
98765321

So, the largest number is 98765321.

- d. On arranging the given digits in descending order, we get,
87654321

So, the largest number is 87654321.

5. a. The smallest digit is 1 other than 0.

So, we will write 1, then 0, then other digit in ascending order, we get, 102367.

So, the smallest number is 102367.

- b. On arranging the given digits in ascending order, we get,
1236789

So, the smallest number is 1236789.

- c. On arranging the given digits in ascending order, we get,
10245678

So, the smallest number is 10245678.

- d. On arranging the given digits in ascending order, we get,
23456789

So, the smallest number is 23456789.

6. a. Successor of 3567895 = $(3567895 + 1) = 3567896$

- b. Successor of 87285634 = $(87285634 + 1) = 87285635$

- c. Successor of 8728196 = $(8728196 + 1) = 8728197$

- d. Successor of 5728959 = $(5728959 + 1) = 5728960$

7. a. Predecessor of 72859163 = $(72859163 - 1) = 72859162$

- b. Predecessor of 814372816 = $(814372816 - 1) = 814372815$

- c. Predecessor of 91728163 = $(91728163 - 1) = 91728162$

- d. Predecessor of 107281694 = $(107281694 - 1) = 107281693$

8. The largest 7-digit number is 9999999 and the largest 6-digit number is 999999.

So, all number of 7-digit = $(9999999 - 999999) = 9000000$

Assessment Time 1.3

1. a. 5,728,564 = Five million seven hundred twenty-eight

- b. 6,296,324 = Six million two hundred ninety-six thousand three hundred twenty-four.
- c. 7,106,238 = Seven million one hundred six thousand two hundred thirty-eight.
- d. 87,206,324 = Eighty-seven million two hundred six thousand three hundred twenty-four.
- e. 10,632,489 = Ten million six hundred thirty-two thousand four hundred eighty-nine.
- f. 45,628,137 = Forty-five million six hundred twenty-eight thousand one hundred thirty-seven.
- g. 4,056,328 = Four million fifty-six thousand three hundred twenty-eight.
- h. 67,281,437 = Sixty-seven million two hundred eighty-one thousand four hundred thirty-seven.

2. a. 7,565,365 b. 90,031,635

 c. 65,072,106 d. 39,464,874

3. a. Five hundred sixty four thousand three hundred fifty.

 b. Six million four hundred eighty-one thousand nine hundred seventy-six.

 c. Forty-seven million two hundred fifty-nine thousand four hundred sixty-nine.

 d. Three hundred thirteen million two hundred ninety-one thousand three hundred five.

4. a. 10 b. 15000 c. 10 d. 1000

1. a. $743\boxed{8}64 \Rightarrow 744000$ (Nearest to thousands)
 $816\boxed{3}20 \Rightarrow 816000$ (Nearest to thousands)
So, the estimated sum of 743864 and 816320
 $= 744000 + 816000 = 1560000$
- b. $372\boxed{8}69 \Rightarrow 373000$ (nearest to thousands)
 $372\boxed{8}59 \Rightarrow 373000$ (nearest to thousands)
So, estimated sum of 372869 and 372859
 $= 373000 + 373000 = 7,46,000$
- c. $406\boxed{3}82 \Rightarrow 406000$ (nearest to thousands)
 $916\boxed{3}84 \Rightarrow 916000$ (nearest to thousands)

So, the estimated sum of 406382 and 916384

$$= 406000 + 916000 = 13,22,000$$

d. $106\boxed{6}82 \Rightarrow 107000$ (nearest to thousands)

$$916\boxed{3}84 \Rightarrow 916000 \text{ (nearest to thousands)}$$

So the estimated sum of 106682 and 916384

$$= 107000 + 916000 = 10,23,000$$

2. a. $81\boxed{6}3281 \Rightarrow 8200000$ (nearest to lakhs)

$$40\boxed{6}2391 \Rightarrow 4100000 \text{ (nearest to lakhs)}$$

So, the estimated sum of 8163281 and 4062391

$$= 8200000 + 4100000 = 1,23,00,000$$

b. $41\boxed{8}2632 \Rightarrow 4200000$ (nearest to lakhs)

$$51\boxed{6}3284 \Rightarrow 5200000 \text{ (nearest to lakhs)}$$

So, the estimated sum of 4182632 and 5163284

$$= 4200000 + 5200000 = 94,00,000$$

c. $372\boxed{8}1694 \Rightarrow 37300000$ (nearest to lakhs)

$$81\boxed{3}7286 \Rightarrow 8100000 \text{ (nearest to lakhs)}$$

So, the estimated sum of 37281694 and 8137286

$$= 37300000 + 8100000 = 4,54,00,000$$

d. $51\boxed{6}3824 \Rightarrow 5200000$ (nearest to lakhs)

$$96\boxed{2}8453 \Rightarrow 9600000 \text{ (nearest to lakhs)}$$

So, the estimated sum of 5163824 and 9628453

$$= 5200000 + 9600000 = 1,48,00,000$$

3. a. $63482\boxed{1}6 \Rightarrow 6348200$ (nearest to hundreds)

$$41906\boxed{3}2 \Rightarrow 4190600 \text{ (nearest to hundreds)}$$

So, the estimated difference of 6348216 and 4190632

$$= 6348200 - 4190600 = 21,57,600$$

b. $891463\boxed{2}8 \Rightarrow 89146300$ (nearest to hundreds)

$$490632\boxed{8}4 \Rightarrow 49063300 \text{ (nearest to hundreds)}$$

So, the estimated difference of 89146328 and 49063284

$$= 89146300 - 49063300 = 4,00,83,000$$

c. $763284\boxed{1}5 \Rightarrow 76328400$ (nearest to hundreds)

$$63281\boxed{9}4 \Rightarrow 6328200 \text{ (nearest to hundreds)}$$

So, the estimated difference = $76328400 - 6328200 =$

$$7,00,00,200$$

d. $169378\boxed{2}4 \Rightarrow 16937800$ (nearest to hundreds)

$9863\boxed{4}2 \Rightarrow 986300$ (nearest to hundreds)

So, the estimated difference of 16937824 and 986342
 $= 16937800 - 986300 = 1,59,51,500$

4. a. $816\boxed{9}137 \Rightarrow 8170000$ (nearest to ten thousands)

$561\boxed{3}782 \Rightarrow 5610000$ (nearest to ten thousands)

So, the estimated difference of 8169137 and 5613782
 $= 8170000 - 5610000 = 25,60,000$

b. $516\boxed{3}829 \Rightarrow 5160000$ (nearest to ten thousands)

$372\boxed{8}163 \Rightarrow 3730000$ (nearest to ten thousands)

So, the estimated difference of 5163829 and 3728163
 $= 5170000 - 3730000 = 14,30,000$

c. $9163\boxed{2}814 \Rightarrow 91630000$ (nearest to ten thousands)

$7063\boxed{2}814 \Rightarrow 70630000$ (nearest to ten thousands)

So, the estimated difference of 91632814 and 70632814
 $= 91630000 - 70630000 = 2,10,00,000$

d. $916\boxed{3}728 \Rightarrow 9160000$ (nearest to ten thousands)

$706\boxed{3}284 \Rightarrow 7060000$ (nearest to ten thousands)

So, the estimated difference of 9163728 and 7063284
 $= 9160000 - 7060000 = 21,00,000$

5. a. $7\boxed{2}4 \Rightarrow 700$ (to the nearest 100)

$5\boxed{1}6 \Rightarrow 500$ (to the nearest 100)

So, the estimated product of

724 and 516 $= 700 \times 500 = 350000$

b. $19\boxed{6} \Rightarrow 200$ (to the nearest 100)

$34\boxed{7}2 \Rightarrow 3500$ (to the nearest 100)

So, the estimated product of

196 and 3472 $= 200 \times 3500 = 7,00,000$

c. $163\boxed{2}8 \Rightarrow 16300$ (to the nearest 100)

$41\boxed{2}3 \Rightarrow 4100$ (to the nearest 100)

So, the estimated product of

16300 and 4100 $= 16300 \times 4100 = 6,68,30,000$

d. $34\boxed{7}2 \Rightarrow 3500$ (to the nearest 100)

$51\boxed{7}6 \Rightarrow 5200$ (to the nearest 100)

So, the estimated product of

$$3472 \text{ and } 5176 = 3500 \times 5200 = 1,82,00,000$$

6. a. $7\boxed{6}32 \Rightarrow 8000$ (to the nearest thousands)

$$1\boxed{3}64 \Rightarrow 1000$$
 (to the nearest thousands)

So, the estimated product of the 7632 and 1364

$$= 8000 \times 1000 = 80,00,000$$

b. $6\boxed{2}48 \Rightarrow 6000$ (to the nearest thousands)

$$5\boxed{4}32 \Rightarrow 5000$$
 (to the nearest thousands)

So, the estimated product of the 6248 and 5432

$$= 6000 \times 5000 = 3,00,00,000$$

c. $15\boxed{6}32 \Rightarrow 16000$ (to the nearest thousands)

$$71\boxed{8}89 \Rightarrow 72000$$
 (to the nearest thousands)

So, the estimated product of the 15632 and 71889

$$= 16000 \times 72000 = 1,15,20,00,000$$

d. $3\boxed{2}76 \Rightarrow 3000$ (to the nearest thousands)

$$9\boxed{6}32 \Rightarrow 10000$$
 (to the nearest thousands)

So, the estimated product of the 3276 and 9632

$$= 3000 \times 10000 = 3,00,00,000$$

7. a. $572\boxed{4}6 \Rightarrow 57200$ (to the nearest hundreds)

$$4\boxed{3}2 \Rightarrow 400$$
 (to the nearest hundreds)

So, the estimated quotient of $57200 \div 400 = 143$

Hence, the estimated quotient is 143.

b. $9163\boxed{2}8 \Rightarrow 916300$ (to the nearest hundreds)

$$1\boxed{4}3 \Rightarrow 100$$
 (to the nearest hundreds)

So, the estimated quotient of $916300 \div 100 = 9163$

Hence, the estimated quotient is 9163.

c. $6381\boxed{9}6 \Rightarrow 638200$ (to the nearest hundreds)

$$5\boxed{3}2 \Rightarrow 500$$
 (to the nearest hundreds)

So, the estimated quotient of $638200 \div 500 = 1276.4$

Hence, the estimated quotient is 1276.4.

d. $6728\boxed{9}2 \Rightarrow 672900$ (to the nearest hundreds)

$$2\boxed{5}9 \Rightarrow 300$$
 (to the nearest hundreds)

So, the estimated quotient of $672900 \div 300 = 2243$

Hence, the estimated quotient is 2243.

8. Total stools = 39489
He sells daily = 1171
He sells in 32 days = $1171 \times 32 = 37472$
Left stools = $39489 - 37472 = 2017$
= 2000 (nearest hundreds)

SEL

- Mr. Agarwal earns = ₹ 68,648
He spends = ₹ 31,372
He saves = ₹ 12,546
Left money = ₹ $\{68648 - (31372 + 12546)\}$
= ₹ $\{68648 - 43918\} = ₹ 24730$
= ₹ 24700 (nearest hundreds)

Assessment Time 1.5

1. a. XVIII = $(10 + 8) = 18$
XL = $(50 - 10) = 40$
XVIII < XL
 $18 < 40$ or XVIII < XL
b. XLV = $(50 - 10) + 5 = 45$
XXV = $10 + 10 + 5 = 25$
 $45 > 25$ or XLV > XXV
c. XXX = $10 + 10 + 10 = 30$
XL = $50 - 10 = 40$
 $30 < 40$
or XXX < XL
d. CDXLV = $(500 - 100) + (50 - 10) + 5$
= $400 + 40 + 5 = 445$
DXCVI = $500 + (100 - 10) + 5 + 1$
= $500 + 90 + 6 = 596$
 $445 < 596$
or CDXLV < DXCVI
2. a. $44 = (50 - 10) + 4 = XLIV$
b. $79 = 50 + 10 + 10 + 9 = LXXIX$
c. $86 = 50 + 10 + 10 + 10 + 6 = LXXXVI$

d. $238 = 100 + 100 + 10 + 10 + 10 + 8 = \text{CCXXXVIII}$

e. $241 = 100 + 100 + (50 - 10) + 1$
 $= \text{CCXLI}$

f. $575 = 500 + 50 + 10 + 10 + 5$
 $= \text{DLXXV}$

g. $563 = 500 + 50 + 10 + 3 = \text{DLXIII}$

h. $625 = 500 + 100 + 10 + 10 + 5 = \text{DCXXV}$

i. $746 = 500 + 100 + 100 + (50 - 10) + 6$
 $= \text{DCCXLVI}$

3. a. $\text{XXXVI} = 10 + 10 + 10 + 5 + 1 = 36$

b. $\text{XLV} = (50 - 10) + 5 = 45$

c. $\text{LXXIX} = 50 + 10 + 10 + 9 = 79$

d. $\text{XCV} = (100 - 10) + 5 = 95$

e. $\text{DXCVI} = 500 + (100 - 10) + 5 + 1$
 $= 500 + 90 + 5 + 1 = 596$

f. $\text{LXVII} = 50 + 10 + 7 = 67$

g. $\text{DXCVIII} = 500 + (100 - 10) + 5 + 1 + 1 + 1$
 $= 500 + 90 + 5 + 1 + 1 + 1 = 598$

h. $\text{CDXLVII} = (500 - 100) + (50 - 10) + 5 + 1 + 1$
 $= 400 + 40 + 5 + 1 + 1 = 447$

i. $\text{DCXVIII} = 500 + 100 + 10 + 5 + 1 + 1 + 1$
 $= 618$

Mental Math

1. 5,00,000 2. M 3. D 4. X 5. 495

MCQs

1. (b) 2. (a) 3. (b) 4. (d)

CHAPTER 2: Addition and Subtraction of Large Number

Assessment Time 2.1

1. a.

	L	TTh	Th	H	T	O
	3	2	3	1	6	2
+	4	3	2	5	0	4
	7	5	5	6	6	6

b.

	L	TTh	Th	H	T	O
	2	1	2	0	5	2
+	5	6	2	8	1	6
	7	7	4	8	6	8

c.

	L	TTh	Th	H	T	O
	4	2	4	1	3	1
+	2	1	3	5	2	1
	6	3	7	6	5	2

d.

	L	TTh	Th	H	T	O
	5	4	3	2	1	6
+	3	3	4	5	2	3
	8	7	7	7	3	9

e.

	L	TTh	Th	H	T	O
	2	2	5	6	1	3
+	5	1	0	2	3	5
	7	3	5	8	4	8

f.

	L	TTh	Th	H	T	O
	4	3	2	1	6	3
+	3	1	1	8	3	5
	7	4	3	9	9	8

g.

	L	TTh	Th	H	T	O
	4	3	1	4	0	5
	3	2	5	1	5	2
+	1	1	2	3	2	2
	8	6	8	8	7	9

h.

	L	TTh	Th	H	T	O
	5	1	6	3	2	1
	2	3	1	2	4	3
+	2	5	2	2	1	0
	9	9	9	7	7	4

i.

	L	TTh	Th	H	T	O
	4	1	6	3	2	1
	2	3	1	6	1	5
+	1	3	2	0	3	0
	7	7	9	9	6	6

j.

	L	TTh	Th	H	T	O
	2	1	2	0	1	6
	2	5	0	1	3	2
+	4	1	5	4	3	1
	8	7	7	5	7	9

k.

	L	TTh	Th	H	T	O
	5	4	6	0	1	2
	1	2	0	5	1	4
+	2	3	2	0	3	1
	8	9	8	5	5	7

l.

	L	TTh	Th	H	T	O
	2	4	3	7	2	1
	3	3	5	2	4	6
+	2	1	0	0	3	2
	7	8	8	9	9	9

2. a. Consider two numbers 223451 and 763242

First way

	L	TTh	Th	H	T	O
	2	2	3	4	5	1
+	7	6	3	2	4	2
	9	8	6	6	9	3

Second way

	L	TTh	Th	H	T	O
	7	6	3	2	4	2
+	2	2	3	4	5	1
	9	8	6	6	9	3

$$223451 + 763242 = 763242 + 223451$$

$$986693 = 986693$$

- b. First way

	L	TTh	Th	H	T	O
	8	2	1	3	2	7
+	1	4	3	2	1	2
	9	6	4	5	3	9

Second way

	L	TTh	Th	H	T	O
	1	4	3	2	1	2
+	8	2	1	3	2	7
	9	6	4	5	3	9

$$821327 + 143212 = 143212 + 821327$$

$$964539 = 964539$$

- c. First way

	L	TTh	Th	H	T	O
	5	4	2	6	7	1
+	2	3	5	2	1	6
	7	7	7	8	8	7

Second way

	L	TTh	Th	H	T	O
	2	3	5	2	1	6
+	5	4	2	6	7	1
	7	7	7	8	8	7

$$542671 + 235216 = 235216 + 542671$$

$$777887 = 777887$$

- d.

	L	TTh	Th	H	T	O
	3	2	1	6	2	4
	2	1	6	3	2	1
+	3	4	2	0	5	3
	8	7	9	9	9	8

- e.

	L	TTh	Th	H	T	O
	6	1	0	2	3	4
	2	5	3	2	5	1
+	1	0	4	3	0	3
	9	6	7	7	8	8

- f.

	L	TTh	Th	H	T	O
	4	2	3	1	6	3
	2	3	1	5	2	2
+	3	4	0	2	0	4
	9	9	4	8	8	9

Assessment Time 2.2

1. a.

	L	TTh	Th	H	T	O
	1	1	1	1	1	
	2	3	4	5	6	7
+	3	8	9	6	5	7
	6	2	4	2	2	4

c.

	L	TTh	Th	H	T	O
	1	1	1	1		
	5	4	7	8	9	6
+	6	5	8	5	7	3
	1	2	0	6	4	6

e.

	L	TTh	Th	H	T	O
	5	3	2	8	5	9
+	2	6	8	7	4	5
	8	0	1	6	0	4

g.

	L	TTh	Th	H	T	O
	2	2	2	1	2	
	3	5	6	8	9	4
	3	8	9	6	3	8
+	1	5	4	6	3	9
	9	0	1	1	7	1

i.

	L	TTh	Th	H	T	O
	1	2	2	1	2	
	3	4	5	7	8	9
	2	8	5	9	6	5
+	1	2	8	5	3	7
	7	6	0	2	9	1

k.

	L	TTh	Th	H	T	O
	1	2	2	2	2	
	1	2	7	9	6	8
	2	3	7	8	9	7
+	3	4	5	7	6	8
	7	1	1	6	3	3

b.

	L	TTh	Th	H	T	O
	1	1	1	1	1	
	6	9	6	3	4	8
+	1	6	3	9	7	8
	8	6	0	3	2	6

d.

	L	TTh	Th	H	T	O
	1	1	1	1	1	
	3	4	6	8	9	4
+	2	5	9	6	8	8
	6	0	6	5	8	2

f.

	L	TTh	Th	H	T	O
	1		1		1	
	3	7	2	8	5	9
+	2	8	5	6	3	9
	6	5	8	4	9	8

h.

	L	TTh	Th	H	T	O
	1	1	2	2	2	
	2	4	1	6	8	9
	1	3	8	9	6	7
+	3	2	8	5	9	6
	7	0	9	2	5	2

j.

	L	TTh	Th	H	T	O
	2	1	1	1	2	
	3	7	9	6	3	8
	2	4	5	3	8	5
+	3	8	2	7	6	9
	1	0	0	7	7	9

l.

	L	TTh	Th	H	T	O
	1	2	2	2	2	
	2	5	7	9	6	8
	1	3	8	5	7	9
+	2	7	4	5	8	6
	6	7	1	1	3	3

2. a.

	L	TTh	Th	H	T	O
	1	1	2	1	1	
	2	7	2	8	5	6
	2	1	5	9	6	8
+	3	8	9	6	3	5
	8	7	8	4	5	9

b.

	L	TTh	Th	H	T	O
	1	2	2	2	1	
		7	9	8	5	4
	3	7	8	9	6	5
+	4	3	7	8	9	5
	8	9	6	7	1	4

c.

	L	TTh	Th	H	T	O
	2	1	1	2	1	
		9	5	6	3	9
	1	9	6	3	8	5
+	3	7	6	8	9	5
	6	6	8	9	1	9

d.

	L	TTh	Th	H	T	O
	2	1	2	2	1	
	6	5	6	9	8	2
	3	7	1	6	8	2
+	1	8	9	6	9	7
	1	2	1	8	3	6

3. a.

	L	TTh	Th	H	T	O
				1	1	
	2	5	6	3	7	8
+	1	4	2	3	9	5
	3	9	8	7	7	3

b.

	L	TTh	Th	H	T	O
	3	2	5	1	6	7
+	2	8	6	9	5	3
	6	1	2	1	2	0

c.

	L	TTh	Th	H	T	O
	4	1	3	7	8	6
+	2	8	3	5	1	2
	6	9	7	2	9	8

Assessment Time 2.3

- $4725 + 10978 = 10978 + 4725$
 - $5163 + 0 = 5163$
 - $813 + (41 + 213) = (813 + 41) + 213$
 - $6785 + 0 = 6785$
 - $3196 + 2187 = 2187 + 3196$
 - $715 + (316 + 2196) = (715 + 316) + 2196$
 - $9160 + 3172 = 3172 + 9160$
 - $7128 + 0 = 7128$

Assessment Time 2.4

1. Number of males in town = 3,28,568
 Number of females in town = 3,19,378
 Total population of town = $(3,28,568 + 3,19,378)$
 $= 6,47,946$

Hence, total population of town is 6,47,946.

2. Company produced toys in 2021 = 53,783

Company produced toys in 2022 = 78,374

Company produced toys in 2023 = 1,22,458

Total produced by company in three 3 years

$$= 53,783 + 78,374 + 1,22,458 = 2,54,615$$

Hence, the toys produced by the company in 3 years is 2,54,615.

	L	TTh	Th	H	T	O
	1	1	1	2	1	
		5	3	7	8	3
		7	8	3	7	4
+	1	2	2	4	5	8
	2	5	4	6	1	5

3. Number of boys appeared in exam = 4,85,958

Number of girls appeared in exam = 3,79,834

Total students appeared in exam = $4,85,958 + 3,79,834$
 $= 8,65,792$

Hence, the total number of students appeared in exam is 8,65,792

	L	TTh	Th	H	T	O
	1	1	1		1	
	4	8	5	9	5	8
+	3	7	9	8	3	4
	8	6	5	7	9	2

4. First candidates got votes = 3,89,348

Second candidates got votes = 2,56,458

Third candidates got votes = 1,15,813

Total number of votes got by three candidates

$$= 3,89,348 + 2,56,458 + 1,15,813$$

Hence, the total number of votes got by three candidates is 7,61,619.

	L	TTh	Th	H	T	O
	1	2	1	1	1	
	3	8	9	3	4	8
	2	5	6	4	5	8
+	1	1	5	8	1	3
	7	6	1	6	1	9

5. Cost of a car = ₹ 5,87,690

Cost of a refrigerator = ₹ 1,55,680

Cost of a LED television = ₹ 83,935

So, the cost of all three items

= ₹ (5,87,690 + 1,55,680 + 83,935)

= ₹ 8,27,305

	L	TTh	Th	H	T	O
	5	8	7	6	9	0
	1	5	5	6	8	0
+		8	3	9	3	5
	8	2	7	3	0	5

Hence, the total cost of all three items are ₹ 8,27,305.

6. Number of bags of wheat = 6,85,960

Number of bags of bazra = 5,35,285

Number of bags of jawar = 3,85,960

Total number of bags

= 6,85,960 + 5,35,285 + 3,85,960

= 16,07,205

	L	TTh	Th	H	T	O
	6	8	5	9	6	0
	5	3	5	2	8	5
+	3	8	5	9	6	0
	1	6	0	7	2	0

Hence, the total number bags in the godown is 16,07,205

7. Number of books on Literature = 75,680

Number of books on Science and Maths = 22,585

Number of books on other subjects = 1,45,850

Total number of books = (75,680 + 22,585 + 1,45,850)

= 2,44,115

	L	TTh	Th	H	T	O
		1	2	2		
		7	5	6	8	0
		2	2	5	8	5
+	1	4	5	8	5	0
	2	4	4	1	1	5

Hence, the total number of books is 2,44,115.

8. Viresh sold his souse = ₹ 15,85,980

Cost of a new flat = ₹ (4,98,385 + 15,85,980) = ₹ 20,84,365

	TL	L	TTh	Th	H	T	O
	1	1	1	1	1		
		4	9	8	3	8	5
+	1	5	8	5	9	8	0
	2	0	8	4	3	6	5

The cost of a new flat is ₹ 20,84,365.

9. The required number = $85,685 + 4,38,562$

Hence, the required number is 5,24,247.

	L	TTh	Th	H	T	O
	1	1	1	1		
	1	8	5	6	8	5
+	4	3	8	5	6	2
	5	2	4	2	4	7

10. Largest 4-digit number = 9999

Smallest 5-digit number = 10000

So, the sum of largest 4-digit number and the smallest 5-digit number = $9999 + 10000 = 19999$

So, the sum of largest 4-digit number and smallest 5-digit number is 19999.

	TTh	Th	H	T	O
	1	0	0	0	0
+		9	9	9	9
	1	9	9	9	9

Assessment Time 2.5

1. a.

	L	TTh	Th	H	T	O
	7	4	8	6	3	9
-	4	2	1	3	2	8
	3	2	7	3	1	1

c.

	L	TTh	Th	H	T	O
	6	7	3	7	6	4
-	2	3	2	6	1	3
	4	4	1	1	5	1

e.

	L	TTh	Th	H	T	O
	5	2	8	9	6	3
-	2	2	3	5	6	2
	3	0	5	4	0	1

g.

	L	TTh	Th	H	T	O
	9	6	3	2	8	5
-	2	4	3	1	6	4
	7	2	0	1	2	1

i.

	L	TTh	Th	H	T	O
	5	4	2	8	6	3
-	4	3	1	7	2	1
	1	1	1	1	4	2

b.

	L	TTh	Th	H	T	O
	8	5	7	3	9	6
-	2	5	3	1	4	2
	6	0	4	2	5	4

d.

	L	TTh	Th	H	T	O
	8	2	8	5	9	6
-	3	1	8	5	3	5
	5	1	0	0	6	1

f.

	L	TTh	Th	H	T	O
	8	9	6	3	2	4
-	5	3	4	2	2	0
	3	6	2	1	0	4

h.

	L	TTh	Th	H	T	O
	7	8	9	6	3	2
-	2	4	3	5	1	2
	5	4	6	1	2	0

2. a.

	L	TTh	Th	H	T	O
	4	8	9	6	7	8
-	2	7	2	4	5	6
	2	1	7	2	2	2

b.

	L	TTh	Th	H	T	O
	5	4	8	6	9	9
-	3	3	6	5	9	8
	2	1	2	1	0	1

c.

	L	TTh	Th	H	T	O
	8	7	6	7	9	7
-	6	2	5	6	0	5
	2	5	1	1	9	2

d.

	L	TTh	Th	H	T	O
	9	8	6	8	5	9
-	7	8	3	7	4	5
	2	0	3	1	1	4

e.

	L	TTh	Th	H	T	O
	6	7	8	9	6	7
-	4	3	2	8	5	4
	2	4	6	1	1	3

f.

	L	TTh	Th	H	T	O
	6	7	8	9	8	7
-	5	5	6	2	8	5
	1	2	2	7	0	2

Assessment Time 2.6

1. a.

	L	TTh	Th	H	T	O
	6	15	12	14	11	14
	7	6	3	5	2	4
-	5	8	3	7	5	8
	1	7	9	7	6	6

b.

	L	TTh	Th	H	T	O
	7	13	11	10	8	17
	8	4	2	0	0	7
-	3	8	5	6	8	9
	4	5	6	4	0	8

c.

	L	TTh	Th	H	T	O
		6	9	9	11	18
	6	7	0	0	2	8
-	3	4	5	6	2	9
	3	2	4	3	9	9

d.

	L	TTh	Th	H	T	O
		6	11	17	11	
	7	7	2	8	1	6
-	5	4	3	8	9	5
	2	2	8	9	2	1

e.

	L	TTh	Th	H	T	O
		5	12	13	9	12
	9	6	3	4	0	2
-	3	2	8	5	9	6
	6	3	4	8	0	6

f.

	L	TTh	Th	H	T	O
	7	12	7	10	15	13
	8	2	8	1	6	3
-	7	3	2	8	9	6
		9	5	2	6	7

g.

	L	TTh	Th	H	T	O
		5	13	1	13	18
	5	6	3	2	4	8
-	3	2	8	1	6	9
	2	3	5	0	7	9

h.

	L	TTh	Th	H	T	O
	6	11	9	11	5	13
	7	2	0	1	6	3
-	3	8	9	6	5	4
	3	3	0	5	0	9

i.

	L	TTh	Th	H	T	O
	5	16	11	9	10	16
	6	7	2	0	1	6
-	3	7	8	1	9	7
	2	9	3	8	1	9

2. a.

	L	TTh	Th	H	T	O
		5	10	10	6	12
	8	6	1	0	7	2
-	7	2	3	5	6	9
	1	3	7	5	0	3

b.

	L	TTh	Th	H	T	O
		7	15	12	9	11
	7	8	6	3	0	1
-	4	5	6	7	2	3
	3	2	9	5	7	8

c.

	L	TTh	Th	H	T	O
			6	9	11	
	8	3	7	0	1	6
-	4	0	5	3	2	1
	4	3	1	6	9	5

d.

	L	TTh	Th	H	T	O
		2	10	10	5	11
	7	3	1	0	6	1
-	3	2	4	6	3	5
	4	0	6	4	2	6

e.

	L	TTh	Th	H	T	O
		1	11	5	9	11
	3	2	1	6	0	1
-	2	1	8	1	6	5
	1	0	3	4	3	6

f.

	L	TTh	Th	H	T	O
	7	10	12	9	9	10
	8	1	3	0	0	0
-	4	1	9	3	0	4
	3	9	3	6	9	6

3. a.

	L	TTh	Th	H	T	O
	4	3	①	6	②	4
-	1	2	0	③	1	③
	3	①	1	3	1	1

b.

	L	TTh	Th	H	T	O
	4	①	5	⑧	2	4
-	1	3	⑦	4	6	⑨
	②	7	8	3	⑤	5

c.

	L	TTh	Th	H	T	O
	8	3	④	5	3	④
-	5	⑦	2	⑧	6	5
	2	6	1	6	⑥	9

Assessment Time 2.7

1. Ruchi has money in her account = ₹ 9,94,384

Ruchi withdraw money = ₹ 2,34,850

Money left in her account = ₹ (9,94,384 – 2,34,850)
= ₹ 7,59,534

	L	TTh	Th	H	T	O
		8	13	13		
	9	9	4	3	8	4
–	2	3	4	8	5	0
	7	5	9	5	3	4

Hence, ₹ 7,59,534 is left in her account.

2. Yashu earn in one year = ₹ 7,58,960

She spends on different items = ₹ 5,86,825

Her savings = ₹ (7,58,960 – 5,86,825)
= ₹ 1,72,135

	L	TTh	Th	H	T	O
	6	15			5	10
	7	5	8	9	6	0
–	5	8	6	8	2	5
	1	7	2	1	3	5

Hence, Yashu's saving is ₹ 1,72,135.

3. Total number of students in university = 4,28,580.

Number of girls = 2,42,346

Number of boys = 4,28,580 – 2,42,346
= 1,86,234

Hence, the number of boys in university is 1,86,234.

	L	TTh	Th	H	T	O
	3	12			7	10
	4	2	8	5	8	0
–	2	4	2	3	4	6
	1	8	6	2	3	4

4. Number of bags a dealer have = 6,84,386

He sold bags = 5,84,594

The remaining number of bags of food grains = 6,84,386 – 5,84,594

= 99792

	L	TTh	Th	H	T	O
	5	17	13	12	18	
	6	8	4	3	8	6
–	5	8	4	5	9	4
	0	9	9	7	9	2

Hence, the number of bags of grains is 99,792.

24 Key Math-05

5. Population of a town in 2021 = 9,65,397

Population of a town in 2023 = 10,07,834

Population was increased in during two years = 10,07,834 – 9,65,397

$$= 42,437$$

The population of a town increased in 2 years is 42,437.

	L	TTh	Th	H	T	O
0	9	10		7	12	14
1	0	0	7	8	3	4
–	9	6	5	3	9	7
	0	4	2	4	3	7

6. Sheena has money = ₹ 85,680

Cost of refrigerator = ₹ 2,55,680

Sheena needed money

$$= ₹ (2,55,680 – 85,680)$$

$$= ₹ 1,70,000$$

₹ 1,70,000 is needed more to buy it.

	L	TTh	Th	H	T	O
	1	15				
	2	5	5	6	8	0
–		8	5	6	8	0
	1	7	0	0	0	0

7. Sum of two numbers = 6,68,937

One number = 3,37,854

Other number = 6,68,937 – 3,37,854

Hence, the other number is 3,31,083

	L	TTh	Th	H	T	O
				8	13	
	6	6	8	9	3	7
–	3	3	7	8	5	4
	3	3	1	0	8	3

8. So required number is 4,85,697 – 4,75,896

	L	TTh	Th	H	T	O
		7	14	16		
	4	8	5	6	9	7
–	4	7	5	8	9	6
	0	0	9	8	0	1

Hence, the required number is 9801.

9. Required number = 3,10,814 – 2,65,972

$$= 44,842$$

	L	TTh	Th	H	T	O
	1	10	9	17	11	
	3	1	0	8	1	4
–	2	6	4	9	7	2
	0	4	4	8	4	2

10. Required number = 4,56,289 – 3,15,972

$$= 1,40,317$$

	L	TTh	Th	H	T	O
			5	12		
	4	5	6	2	8	9
–	3	1	5	9	7	2
	1	4	0	3	1	7

SDG–Climate Action

Forest A covers large part of the earth by 17,20,000

	TL	L	TTh	Th	H	T	O
	3	14	10				
	4	5	0	0	0	0	0
–	2	7	8	0	0	0	0
	1	7	2	0	0	0	0

Assessment Time 2.8

1. a. On adding numbers with same sign together, we get
Sum of negative number

Sum of
negative numbers

	L	TTh	Th	H	T	O
	3	4	2	6	1	2
+	1	0	2	3	8	7
	4	4	4	9	9	9

Now, difference

	L	TTh	Th	H	T	O
	6	11	5	12	13	12
	7	1	6	3	4	2
–	4	4	4	9	9	9
	2	7	1	3	4	3

Hence, simplified form of given numbers is 2,71,343.

- b. On adding number with the same sign together we get,

Sum of
positive numbers

	L	TTh	Th	H	T	O
			1	1	1	
	4	4	2	1	6	8
+	1	0	6	8	9	7
	5	4	9	0	6	5

Sum of
negative numbers

	L	TTh	Th	H	T	O
		1	1			
	2	0	6	3	4	2
+		8	5	9	1	6
	2	9	2	2	5	8

Now we subtract the sum of negative number with the sum of positive numbers.

Now, difference

	L	TTh	Th	H	T	O
	4	14	8	10	5	15
	5	4	9	0	6	5
–	2	9	2	2	5	8
	2	5	6	8	0	7

Hence, the simplified form of given number is 2,56,807.

- c. On adding numbers with the same sign together, we get

Now we subtract the sum of negative number with the sum of positive numbers.

Now, difference

	L	TTh	Th	H	T	O
	5	13				
	8	3	8	9	1	6
-	4	8	3	2	0	1
	1	5	4	7	1	5

Sum of negative numbers

	L	TTh	Th	H	T	O
	3	1	6	2	1	8
	1	0	9	6	3	8
+	5	8	3	4	5	
	4	8	4	2	0	1

Hence, the simplified form of given number is 1,54,715.

- d. On adding number with the same sign together, we get

Sum of positive numbers

	L	TTh	Th	H	T	O
	1	1			1	
	7	8	2	9	1	6
+	1	0	8	9	1	6
	8	9	1	8	3	2

Sum of negative numbers

	L	TTh	Th	H	T	O
	1	1				
	3	2	8	5	1	4
+	2	3	8	5	7	6
	5	6	7	0	9	0

Now we subtract the sum of negative number with the sum of positive numbers.

Now, difference

	L	TTh	Th	H	T	O
	7	8	11	7	13	
	8	9	1	8	3	2
-	5	6	7	0	9	0
	3	2	4	7	4	2

Hence, the simplified form of given number is 3,24,742.

- e. On adding number with the same sign together, we get

Sum of positive numbers

	L	TTh	Th	H	T	O
	1	1			1	
	4	2	3	2	1	6
+	3	5	8	9	1	6
	7	8	2	1	3	2

Sum of negative numbers

	L	TTh	Th	H	T	O
	1	1	1	1	1	
	4	2	8	1	6	2
		5	8	9	1	6
+	2	0	4	1	6	
	5	0	7	4	9	4

Now we subtract the sum of negative number with the sum of positive numbers.

Now, difference

	L	TTh	Th	H	T	O
		7	11	10	12	12
	7	8	2	1	3	2
-	5	0	7	4	9	4
	2	7	4	6	3	8

Hence, the simplified form of given number is 2,74,638.

f. On adding number with the same sign together, we get

Sum of positive numbers

	L	TTh	Th	H	T	O
	1	1	1		1	
	2	8	9	6	3	8
+	3	2	8	9	1	6
	6	1	8	5	5	4

Sum of negative numbers

	L	TTh	Th	H	T	O
	1	1	1	1	1	
	3	1	6	5	4	8
		9	1	6	3	4
+		4	8	6	8	5
	4	5	6	8	6	7

Now we subtract the sum of negative number with the sum of positive numbers.

Now, difference

	L	TTh	Th	H	T	O
	5	11	7	14	14	14
	6	1	8	5	5	4
-	4	5	6	8	6	7
	1	6	1	6	8	7

Hence, the simplified form of given number is 1,61,687.

2. Total population of a city = 9,94,345

Number of mens = 3,86,342

Number of women = 3,54,916

No. of children in the city = 9,94,345 - (3,86,342 + 3,54,916)

= 9,94,345 - 7,41,258 = 2,53,087

	L	TTh	Th	H	T	O
	1	1	1			
	3	8	6	3	4	2
+	3	5	4	9	1	6
	7	4	1	2	5	8

	L	TTh	Th	H	T	O
				2	13	15
	9	9	4	3	4	5
-	7	4	1	2	5	8
	2	5	3	0	8	7

Hence, the number of children in the city is 2,53,087

3. Number of students in 2012 = 2,45,67,230
 Number of students in 2014 = 4,56,78,910
 Total number of students = (2,45,67,230 + 4,56,78,910)
 = 7,02,46,140

	C	TL	L	TTh	Th	H	T	O
	1	1	1	1	1			
	2	4	5	6	7	2	3	0
+	4	5	6	7	8	9	1	0
	7	0	2	4	6	1	4	0

Hence, the total number of students in both years in 7,02,46,140.

4. Population of a country in 2015 = 2,45,67,910
 Population increase in 2016 = 56,78,560
 Population increase in 2017 = 4,85,925
 Total population of country in 2017
 = (2,45,67,910 + 56,78,560 + 4,85,925)
 = 3,07,32,395

	C	TL	L	TTh	Th	H	T	O
	1	1	2	2	2			
	2	4	5	6	7	9	1	0
		5	6	7	8	5	6	0
+			4	8	5	9	2	5
	3	0	7	3	2	3	9	5

Hence, the total population of a country in 2017 is 3,07,32,395.

5. Annual fees of students A = ₹ 25,670
 Annual fees of students B = ₹ 15,580
 Total fees of both students
 = ₹ (25,670 + 15,580)
 = ₹ 41,250

	TTh	Th	H	T	O
	1	1	1		
	2	5	6	7	0
+	1	5	5	8	0
	4	1	2	5	0

Student A pay more annual fees by
 = ₹ (25,670 – 15,580)
 = ₹ 10,090

	TTh	Th	H	T	O
			5	17	
	2	5	6	7	0
–	1	5	5	8	0
	1	0	0	9	0

6. Total number of bulbs = 14,56,780
 Bulbs sent to Delhi = 3,46,580
 Bulbs sent to Punjab = 2,15,670
 Bulbs left in the stock = 14,56,780 – (3,46,580 + 2,15,670)

	L	TTh	Th	H	T	O
	1	1	1			
	3	4	6	5	8	0
+	2	1	5	6	7	0
	5	6	2	2	5	0

TL	L	TTh	Th	H	T	O
0	13	15				
1	4	5	6	7	8	0
-		5	6	2	2	5
		8	9	4	5	3

$$= 14,56,780 - 5,62,250$$

$$= 8,94,530$$

Hence, 8,94,530 bulbs left in the stock.

7. Company B invested more by = ₹ (56,870,910 – 34,560,720)

C	TL	L	TTh	Th	H	T	O
					8	11	
	5	6	8	7	0	9	1
-	3	4	5	6	0	7	2
	2	2	3	1	0	1	9

$$= ₹ 2,23,10,190$$

Company A invested = ₹ 34,560,720

Company B invested = ₹ 56,870,910

Total investment of both companies = ₹ (34,560,720 + 56,870,910)

C	TL	L	TTh	Th	H	T	O
1	1	1		1			
	5	6	8	7	0	9	1
+	3	4	5	6	0	7	2
	9	1	4	3	1	6	3

$$= 91,431,630$$

Hence, the total investment of both companies are ₹ 91,431,630.

8. Anita had money in her bank account = ₹ 54,78,910

Cheque received = ₹ 95,670

Cash withdraw = ₹ 15,54,780

Amount left in bank = ₹ {(54,78,910 + 95,670) – 15,54,780}
 = ₹ {55,74,580 – 15,54,780}

	TL	L	TTh	Th	H	T	O
		1	1	1			
	5	4	7	8	9	1	0
+			9	5	6	7	0
	5	5	7	4	5	8	0

	TL	L	TTh	Th	H	T	O
			6	13	15		
	5	5	7	4	5	8	0
-		5	5	4	7	8	0
	4	0	1	9	8	0	0

= ₹ 40,19,800

Mental Math

1. 76743
2. 46788
3. 545679
4. 789655
5. 0

MCQs

1. (a)
2. (c)
3. (a)
4. (b)
5. (c)
6. (c)
7. (b)
8. (b)

CHAPTER-3: Multiplication AND Division

Assessment Time 3.1

1. a. $4726 \times 512 = 512 \times 4726$
 b. $72 \times (10 \times 15) = (72 \times 10) \times 15$
 c. $5692 \times 0 = 0$
 d. $3728 \times 1 = 3728$
 e. $6645 \times 0 = 0$
 f. $612 \times (41 \times 63) = (612 \times 41) \times 63$
 g. $328 \times 519 = 519 \times 328$
 h. $1694 \times 1 = 1694$

Assessment Time 3.2

1. a. $738 \times 10 = 7380$
 b. $415 \times 10 = 4150$
 c. $5325 \times 100 = 532500$
 d. $816 \times 100 = 81600$
 e. $371 \times 100 = 37100$
 f. $8163 \times 1000 = 8163000$
 g. $896 \times 10 = 8960$
 h. $723 \times 1000 = 723000$
 i. $1839 \times 100 = 183900$
2. a. $528 \times 40 = 528 \times (4 \times 10) = (528 \times 4) \times 10$
 $= 21120$
 b. $732 \times 500 = 732 \times (5 \times 100) = (732 \times 5) \times 100$
 $= 366000$

c. $427 \times 70 = 427 \times (7 \times 10) = (427 \times 7) \times 10 = 29890$

d. $916 \times 300 = 916 \times (3 \times 100) = (916 \times 3) \times 100$
 $= 274800$

e. $416 \times 6000 = 416 \times (6 \times 1000) = (416 \times 6) \times 1000$
 $= 2496000$

f. $819 \times 80 = 819 \times (8 \times 10) = (819 \times 8) \times 10 = 65520$

g. $937 \times 900 = 937 \times (9 \times 100) = (937 \times 9) \times 100$
 $= 843300$

h. $289 \times 7000 = 289 \times (7 \times 1000) = (289 \times 7) \times 1000$
 $= 2023000$

i. $412 \times 9000 = 412 \times (9 \times 1000) = (412 \times 9) \times 1000$
 $= 3708000$

3. a. $26 \times 50 \times 4 = 26 \times (50 \times 4) = 26 \times 200 = 5200$

b. $125 \times 361 \times 4 = 361 \times (125 \times 4) = 361 \times 500$
 $= 180500$

c. $428 \times 20 \times 5 = 428 \times (20 \times 5) = 428 \times 100$
 $= 42800$

d. $512 \times 25 \times 4 = 512 \times (25 \times 4) = 512 \times 100$
 $= 51200$

e. $50 \times 23 \times 8 = 23 \times (50 \times 8) = 23 \times 400$
 $= 9200$

f. $60 \times 30 \times 5 = 30 \times (60 \times 5) = 30 \times 300 = 9000$

g. $16 \times 32 \times 50 = 16 \times (32 \times 50) = 16 \times 1600$
 $= 25600$

h. $50 \times 53 \times 10 = 53 \times (50 \times 10) = 53 \times 500$
 $= 26500$

i. $12 \times 27 \times 5 = 27 \times (12 \times 5) = 27 \times 60 = 1620$

Assessment Time 3.3

1. a.	58	b.	86	c.	97
	$\times 47$		$\times 34$		$\times 78$
	<u>406</u>		<u>344</u>		<u>776</u>
	+ 2320		+ 2580		+ 6790
	<u>2726</u>		<u>2924</u>		<u>7566</u>

$$\begin{array}{r} \text{d.} \quad 424 \\ \times 39 \\ \hline 3816 \\ + 12720 \\ \hline 16536 \end{array}$$

$$\begin{array}{r} \text{e.} \quad 629 \\ \times 84 \\ \hline 2516 \\ + 50320 \\ \hline 52836 \end{array}$$

$$\begin{array}{r} \text{f.} \quad 516 \\ \times 75 \\ \hline 2580 \\ + 36120 \\ \hline 38700 \end{array}$$

$$\begin{array}{r} \text{g.} \quad 623 \\ \times 98 \\ \hline 4984 \\ + 56070 \\ \hline 61054 \end{array}$$

$$\begin{array}{r} \text{h.} \quad 426 \\ \times 69 \\ \hline 3834 \\ + 25560 \\ \hline 29394 \end{array}$$

$$\begin{array}{r} \text{i.} \quad 967 \\ \times 58 \\ \hline 7736 \\ + 48350 \\ \hline 56086 \end{array}$$

$$\begin{array}{r} 2. \text{ a.} \quad 2163 \\ \times 28 \\ \hline 17304 \\ + 43260 \\ \hline 60564 \end{array}$$

$$\begin{array}{r} \text{b.} \quad 9163 \\ \times 35 \\ \hline 45815 \\ + 274890 \\ \hline 320705 \end{array}$$

$$\begin{array}{r} \text{c.} \quad 8143 \\ \times 83 \\ \hline 24429 \\ + 651440 \\ \hline 675869 \end{array}$$

$$\begin{array}{r} \text{d.} \quad 9163 \\ \times 37 \\ \hline 64141 \\ + 274890 \\ \hline 339031 \end{array}$$

$$\begin{array}{r} \text{e.} \quad 41632 \\ \times 43 \\ \hline 124896 \\ + 1665280 \\ \hline 1790176 \end{array}$$

$$\begin{array}{r} \text{f.} \quad 12634 \\ \times 38 \\ \hline 101072 \\ + 379020 \\ \hline 480092 \end{array}$$

$$\begin{array}{r} \text{g.} \quad 31762 \\ \times 52 \\ \hline 63524 \\ + 1588100 \\ \hline 1651624 \end{array}$$

$$\begin{array}{r} \text{h.} \quad 51632 \\ \times 63 \\ \hline 154896 \\ + 3097920 \\ \hline 3252816 \end{array}$$

$$\begin{array}{r}
 \text{i.} \quad 15285 \\
 \times 72 \\
 \hline
 30570 \\
 + 1069950 \\
 \hline
 1100520
 \end{array}$$

Assessment Time 3.4

$$\begin{array}{r}
 \text{1. a.} \quad 526 \\
 \times 316 \\
 \hline
 3156 \\
 5260 \\
 + 157800 \\
 \hline
 166216
 \end{array}$$

$$\begin{array}{r}
 \text{b.} \quad 419 \\
 \times 329 \\
 \hline
 3771 \\
 8380 \\
 + 125700 \\
 \hline
 137851
 \end{array}$$

$$\begin{array}{r}
 \text{c.} \quad 723 \\
 \times 108 \\
 \hline
 5784 \\
 0000 \\
 + 72300 \\
 \hline
 78384
 \end{array}$$

$$\begin{array}{r}
 \text{d.} \quad 322 \\
 \times 124 \\
 \hline
 1288 \\
 6440 \\
 32200 \\
 \hline
 39928
 \end{array}$$

$$\begin{array}{r}
 \text{e.} \quad 815 \\
 \times 716 \\
 \hline
 4890 \\
 8150 \\
 + 570500 \\
 \hline
 583540
 \end{array}$$

$$\begin{array}{r}
 \text{f.} \quad 319 \\
 \times 218 \\
 \hline
 2552 \\
 3190 \\
 63800 \\
 \hline
 69542
 \end{array}$$

$$\begin{array}{r}
 \text{g.} \quad 928 \\
 \times 325 \\
 \hline
 4640 \\
 18560 \\
 + 278400 \\
 \hline
 301600
 \end{array}$$

$$\begin{array}{r}
 \text{h.} \quad 363 \\
 \times 219 \\
 \hline
 3267 \\
 3630 \\
 + 72600 \\
 \hline
 79497
 \end{array}$$

i.

$$\begin{array}{r}
 638 \\
 \times 256 \\
 \hline
 3828 \\
 31900 \\
 + 127600 \\
 \hline
 163328
 \end{array}$$

2. a.

$$\begin{array}{r}
 3928 \\
 \times 296 \\
 \hline
 23568 \\
 353520 \\
 + 785600 \\
 \hline
 1162688
 \end{array}$$

b.

$$\begin{array}{r}
 5810 \\
 \times 906 \\
 \hline
 34860 \\
 00000 \\
 + 5229000 \\
 \hline
 5263860
 \end{array}$$

c.

$$\begin{array}{r}
 3216 \\
 \times 213 \\
 \hline
 9648 \\
 32160 \\
 643200 \\
 \hline
 685008
 \end{array}$$

d.

$$\begin{array}{r}
 4106 \\
 \times 134 \\
 \hline
 16424 \\
 123180 \\
 + 410600 \\
 \hline
 550204
 \end{array}$$

e.

$$\begin{array}{r}
 6318 \\
 \times 214 \\
 \hline
 25272 \\
 63180 \\
 + 1263600 \\
 \hline
 1352052
 \end{array}$$

f.

$$\begin{array}{r}
 6438 \\
 \times 416 \\
 \hline
 38628 \\
 64380 \\
 + 2575200 \\
 \hline
 2678208
 \end{array}$$

g.

$$\begin{array}{r}
 4392 \\
 \times 139 \\
 \hline
 40528 \\
 131760 \\
 + 439200 \\
 \hline
 610488
 \end{array}$$

h.

$$\begin{array}{r}
 6123 \\
 \times 318 \\
 \hline
 48984 \\
 61230 \\
 + 1836900 \\
 \hline
 1947114
 \end{array}$$

$$\begin{array}{r}
 \text{i.} \quad 3169 \\
 \times 428 \\
 \hline
 25352 \\
 63380 \\
 + 1267600 \\
 \hline
 1356332
 \end{array}$$

Assessment Time 3.5

1. Number of erasers a box contain = 144

Number of erasers in 2083 such boxes = (2083×144)

$$= 299952$$

Hence, there are 299952 eraser in 2083 such boxes.

$$2083$$

$$\times 144$$

$$\hline 8332$$

$$83320$$

$$+ 208300$$

$$\hline 299952$$

2. Number of bags of cement a truck can carry = 378

Number of bags of cement 1256 truck carry = 378×1256

$$= 474768$$

$$1256$$

$$\times 378$$

$$\hline 10048$$

$$87920$$

$$+ 376800$$

$$\hline 474768$$

3. Water tank can hold water = 1250 L

56 water tanks can hold water = 1250×56

$$= 70000 \text{ L}$$

Hence, 56 tanks can hold 70000 L of water

$$1250$$

$$\times 56$$

$$\hline 7500$$

$$+ 62500$$

$$\hline 70000$$

4. Company produces bolts in one day = 785

Company produces bolt in one year if 52 day are holiday

$$= (365 - 52) \times 785$$

$$= 313 \times 785$$

Hence, company produced 245705 bolts in one year if 52 days are holiday in that year.

$$\begin{array}{r} 785 \\ \times 313 \\ \hline 2355 \\ 7850 \\ + 235500 \\ \hline 245705 \end{array}$$

5. Wholesaler buy 328 boxes of apples = ₹ 570 per boxes.

Total cost of all boxes = ₹ (328 × 570)

$$= ₹ 1,86,960$$

Hence, the total cost of all boxes is ₹ 1,86,960

$$\begin{array}{r} 570 \\ \times 328 \\ \hline 4560 \\ 11400 \\ + 171000 \\ \hline 186960 \end{array}$$

6. Cost of 1 laptop = ₹ 37,899

Cost of 124 such laptops = ₹ (37899 × 124)

$$= ₹ 46,99,476$$

Hence, cost of 124 such laptops

is ₹ 46,99,476.

$$\begin{array}{r} 37899 \\ \times 124 \\ \hline 151596 \\ 757980 \\ + 3789900 \\ \hline 4699476 \end{array}$$

7. Cost of 1 LED Television = ₹ 50,995

Cost of 98 LED television = ₹ (50,995 × 98)

$$= ₹ 49,97,510$$

Hence, the cost of 98 LED television is ₹ 49,97,510.

$$\begin{array}{r} 50995 \\ \times 98 \\ \hline 407960 \\ + 4589550 \\ \hline 4997510 \end{array}$$

8. Number of books publisher publish in a year = 35

Number of pages each book contain = 215

Number of books publisher publish in 25 years

$$= 35 \times 25 = 875 \text{ books}$$

Number of pages they have = 875 × 215

$$= 1,88,125$$

$$\begin{array}{r} 875 \\ \times 215 \\ \hline 4375 \\ 8750 \\ + 175000 \\ \hline 188125 \end{array}$$

9. Honeybee extract honey in a year = 28000 mL

Honeybee extract honey in 12 years = 28000×12

$$= 336000 \text{ mL} \quad 28000$$

Hence, honeybee extract 336000 mL of
honey in 12 years

$$\begin{array}{r} 28000 \\ \times 12 \\ \hline 56000 \\ + 280000 \\ \hline 336000 \end{array}$$

10. Salaried employee earns in a year = ₹ 34,26,716

Salaried employee earns in 8 years = ₹ $(34,26,716 \times 8)$

$$\begin{array}{r} 3426716 \\ \times 8 \\ \hline 27413728 \end{array}$$

$$= ₹ 2,74,13,728$$

Hence, the salaried employee earns ₹ 2,74,13,728 in 8 years.

11. Number of pages a machine print in one month = 2,64,718

Number of page printed in 366 months = $2,64,718 \times 366$

$$\begin{array}{r} 264718 \\ \times 366 \\ \hline 1588308 \\ 15883080 \\ + 79415400 \\ \hline 96886788 \end{array}$$

$$= ₹ 9,68,86,788$$

Hence, 9,68,86,788 pages are printed in 366 months.

Assessment Time 3.6

1. $7164 \div 1 = 7164$

2. $5142 \div 5142 = 1$

3. $0 \div 819 = 0$

4. $0 \div 814 = 0$

5. $2148 \div 2148 = 1$

6. $9163 \div 9163 = 1$

7. $512 \div 1 = 512$

8. $2054 \div 2054 = 1$

Assessment Time 3.7

1. a. $71642 \div 10$

$Q = 7164, R = 2$

c. $972859 \div 10$

$Q = 9728, R = 59$

e. $51632 \div 100$

$Q = 516, R = 32$

g. $62814 \div 1000$

$Q = 62, R = 814$

i. $91432 \div 1000$

$Q = 91, R = 432$

b. $81062 \div 10$

$Q = 8106, R = 2$

d. $40283 \div 100$

$Q = 402, R = 83$

f. $81432 \div 100$

$Q = 814, R = 32$

h. $153726 \div 1000$

$Q = 153, R = 726$

j. $567894 \div 1000$

$Q = 567, R = 894$

Assessment Time 3.8

1. a. $72836 \div 8$

$$\begin{array}{r} 9104 \\ 8 \overline{) 72836} \\ \underline{-72} \\ 08 \\ \underline{-08} \\ 03 \\ \underline{-00} \\ 36 \\ \underline{-32} \\ 4 \end{array}$$

$Q = 9104, R = 4$

b. $816324 \div 6$

$$\begin{array}{r} 136054 \\ 6 \overline{) 816324} \\ \underline{-6} \\ 21 \\ \underline{-18} \\ 36 \\ \underline{-36} \\ 032 \\ \underline{-30} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

$Q = 136054, R = 0$

d. $6163028 \div 4$

$$\begin{array}{r} 1540757 \\ 4 \overline{) 6163028} \\ \underline{-4} \downarrow \\ 21 \downarrow \\ \underline{-20} \downarrow \\ 16 \downarrow \\ \underline{-16} \downarrow \\ 030 \downarrow \\ \underline{-28} \downarrow \\ 22 \downarrow \\ \underline{-20} \downarrow \\ 28 \downarrow \\ \underline{-28} \\ 0 \end{array}$$

$$Q = 1540757, R = 0$$

f. $8065142 \div 5$

$$\begin{array}{r}
 1613028 \\
 5 \overline{) 8065142} \\
 \underline{-5} \downarrow \\
 30 \downarrow \\
 \underline{-30} \downarrow \\
 06 \downarrow \\
 \underline{-5} \downarrow \\
 15 \downarrow \\
 \underline{-15} \downarrow \\
 014 \downarrow \\
 \underline{-10} \downarrow \\
 42 \downarrow \\
 \underline{-40} \\
 2
 \end{array}$$

$$Q = 1613028, R = 2$$

g. $416328 \div 6$

$$\begin{array}{r}
 69388 \\
 6 \overline{) 416328} \\
 \underline{-36} \downarrow \downarrow \downarrow \downarrow \\
 56 \downarrow \downarrow \downarrow \downarrow \\
 \underline{-54} \downarrow \downarrow \downarrow \downarrow \\
 23 \downarrow \downarrow \downarrow \downarrow \\
 \underline{-18} \downarrow \downarrow \downarrow \downarrow \\
 52 \downarrow \downarrow \downarrow \downarrow \\
 \underline{-48} \downarrow \downarrow \downarrow \downarrow \\
 48 \downarrow \downarrow \downarrow \downarrow \\
 \underline{-48} \downarrow \downarrow \downarrow \downarrow \\
 0
 \end{array}$$

$Q = 69388, R = 0$

i. $7281634 \div 8$

$$\begin{array}{r}
 910204 \\
 8 \overline{) 7281634} \\
 \underline{-72} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 08 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-8} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 016 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-16} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 034 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-32} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 2
 \end{array}$$

$Q = 910204, R = 2$

2. a. $472896 \div 29$

$$\begin{array}{r}
 16306 \\
 29 \overline{) 472896} \\
 \underline{-29} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 182 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-174} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 88 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-87} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 196 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-174} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 22
 \end{array}$$

h. $4056328 \div 4$

$$\begin{array}{r}
 1014082 \\
 4 \overline{) 4056328} \\
 \underline{-4} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 005 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-4} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 16 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-16} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 032 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-32} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 08 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-8} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 0
 \end{array}$$

$Q = 1014082, R = 0$

b. $512816 \div 35$

$$\begin{array}{r}
 14651 \\
 35 \overline{) 512816} \\
 \underline{-35} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 162 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-140} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 228 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-210} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 181 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-175} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 66 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-35} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 31
 \end{array}$$

$$Q = 16306, R = 22$$

c. $7196342 \div 18$

$$\begin{array}{r} 399796 \\ 18 \overline{) 7196342} \\ \underline{-54} \downarrow \downarrow \downarrow \downarrow \\ 179 \downarrow \downarrow \downarrow \downarrow \\ \underline{-162} \downarrow \downarrow \downarrow \downarrow \\ 176 \downarrow \downarrow \downarrow \downarrow \\ \underline{-162} \downarrow \downarrow \downarrow \downarrow \\ 143 \downarrow \downarrow \downarrow \downarrow \\ \underline{-126} \downarrow \downarrow \downarrow \downarrow \\ 174 \downarrow \downarrow \downarrow \downarrow \\ \underline{-162} \downarrow \downarrow \downarrow \downarrow \\ 122 \downarrow \downarrow \downarrow \downarrow \\ \underline{-108} \downarrow \downarrow \downarrow \downarrow \\ 14 \end{array}$$

$$Q = 399796, R = 14$$

e. $526821 \div 51$

$$\begin{array}{r} 10329 \\ 51 \overline{) 526821} \\ \underline{-51} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 168 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-153} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 152 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-102} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 501 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-459} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 42 \end{array}$$

$$Q = 103,29 R = 42$$

$$Q = 14651, R = 31$$

d. $4026352 \div 42$

$$\begin{array}{r} 95865 \\ 42 \overline{) 4026352} \\ \underline{-378} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 246 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-210} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 363 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-336} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 275 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-252} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 232 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-210} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 22 \end{array}$$

$$Q = 95865, R = 22$$

f. $916382 \div 68$

$$\begin{array}{r} 13476 \\ 68 \overline{) 916382} \\ \underline{-68} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 236 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-204} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 323 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-272} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 518 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-476} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 422 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-408} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 14 \end{array}$$

$$Q = 13476, R = 14$$

g. $7163242 \div 69$

$$\begin{array}{r}
 103815 \\
 \hline
 69 \overline{) 7163242} \\
 \underline{-69} \downarrow \downarrow \\
 263 \\
 \underline{-207} \\
 562 \\
 \underline{-552} \\
 104 \\
 \underline{-69} \\
 352 \\
 \underline{-345} \\
 7 \\
 \hline
 \end{array}$$

$Q = 103815, R = 7$

i. $3714284 \div 93$

$$\begin{array}{r}
 39938 \\
 \hline
 93 \overline{) 3714284} \\
 \underline{-279} \downarrow \downarrow \\
 924 \\
 \underline{-837} \\
 872 \\
 \underline{-837} \\
 358 \\
 \underline{-279} \\
 794 \\
 \underline{-744} \\
 50 \\
 \hline
 \end{array}$$

$Q = 39938, R = 50$

h. $4023782 \div 86$

$$\begin{array}{r}
 46788 \\
 \hline
 86 \overline{) 4023782} \\
 \underline{-344} \downarrow \downarrow \\
 583 \\
 \underline{-516} \\
 677 \\
 \underline{-602} \\
 758 \\
 \underline{-688} \\
 702 \\
 \underline{-688} \\
 14 \\
 \hline
 \end{array}$$

$Q = 46788, R = 14$

3. a. $8128163 \div 123$

$$\begin{array}{r}
 66082 \\
 123 \overline{) 8128163} \\
 \underline{-738} \downarrow \downarrow \downarrow \\
 748 \downarrow \downarrow \downarrow \\
 \underline{-738} \downarrow \downarrow \downarrow \\
 1016 \downarrow \downarrow \downarrow \\
 \underline{-984} \downarrow \downarrow \downarrow \\
 323 \downarrow \downarrow \downarrow \\
 \underline{-246} \downarrow \downarrow \downarrow \\
 77
 \end{array}$$

Q = 66082, R = 77

c. $9163284 \div 187$

$$\begin{array}{r}
 49001 \\
 187 \overline{) 9163284} \\
 \underline{-748} \downarrow \downarrow \downarrow \\
 1683 \downarrow \downarrow \downarrow \\
 \underline{-1683} \downarrow \downarrow \downarrow \\
 0284 \downarrow \downarrow \downarrow \\
 \underline{-187} \downarrow \downarrow \downarrow \\
 97
 \end{array}$$

Q = 49001, R = 97

e. $1913728 \div 315$

$$\begin{array}{r}
 6075 \\
 315 \overline{) 1913728} \\
 \underline{-1890} \downarrow \downarrow \downarrow \\
 2372 \downarrow \downarrow \downarrow \\
 \underline{-2205} \downarrow \downarrow \downarrow \\
 1678 \downarrow \downarrow \downarrow \\
 \underline{-1575} \downarrow \downarrow \downarrow \\
 103
 \end{array}$$

Q = 6075, R = 103

b. $516328 \div 214$

$$\begin{array}{r}
 2412 \\
 214 \overline{) 516328} \\
 \underline{-428} \downarrow \downarrow \downarrow \\
 883 \downarrow \downarrow \downarrow \\
 \underline{-756} \downarrow \downarrow \downarrow \\
 272 \downarrow \downarrow \downarrow \\
 \underline{-214} \downarrow \downarrow \downarrow \\
 588 \downarrow \downarrow \downarrow \\
 \underline{-428} \downarrow \downarrow \downarrow \\
 160
 \end{array}$$

Q = 2412, R = 160

d. $3728164 \div 207$

$$\begin{array}{r}
 18010 \\
 207 \overline{) 3728164} \\
 \underline{-207} \downarrow \downarrow \downarrow \\
 1658 \downarrow \downarrow \downarrow \\
 \underline{-1656} \downarrow \downarrow \downarrow \\
 216 \downarrow \downarrow \downarrow \\
 \underline{-207} \downarrow \downarrow \downarrow \\
 94
 \end{array}$$

Q = 18010, R = 94

f. $6789164 \div 457$

$$\begin{array}{r}
 14855 \\
 457 \overline{) 6789164} \\
 \underline{-457} \downarrow \downarrow \downarrow \\
 2219 \downarrow \downarrow \downarrow \\
 \underline{-1828} \downarrow \downarrow \downarrow \\
 3911 \downarrow \downarrow \downarrow \\
 \underline{-3656} \downarrow \downarrow \downarrow \\
 2556 \downarrow \downarrow \downarrow \\
 \underline{-2285} \downarrow \downarrow \downarrow \\
 2714 \downarrow \downarrow \downarrow \\
 \underline{-2285} \downarrow \downarrow \downarrow \\
 429
 \end{array}$$

Q = 14855, R = 429

g. $8163241 \div 503$

$$\begin{array}{r}
 16229 \\
 503 \overline{) 8163241} \\
 \underline{-503} \downarrow \\
 3133 \\
 \underline{-3018} \downarrow \\
 1152 \\
 \underline{-1006} \downarrow \\
 1464 \\
 \underline{-1006} \downarrow \\
 4581 \\
 \underline{-4527} \\
 54
 \end{array}$$

$Q = 16229, R = 54$

i. $8143248 \div 634$

$$\begin{array}{r}
 12844 \\
 634 \overline{) 8143248} \\
 \underline{-634} \downarrow \\
 1803 \\
 \underline{-1268} \downarrow \\
 5352 \\
 \underline{-5072} \downarrow \\
 2804 \\
 \underline{-2536} \downarrow \\
 2688 \\
 \underline{-2536} \\
 152
 \end{array}$$

$Q = 12844, R = 152$

h. $8196241 \div 763$

$$\begin{array}{r}
 10742 \\
 763 \overline{) 8196241} \\
 \underline{-763} \downarrow \\
 5662 \\
 \underline{-5341} \downarrow \\
 3214 \\
 \underline{-3052} \downarrow \\
 1621 \\
 \underline{-1526} \\
 95
 \end{array}$$

$Q = 10742, R = 95$

b. $716409 \div 7$

$$\begin{array}{r}
 \begin{array}{cccccc}
 & 1 & 0 & 2 & 3 & 4 & 4 \\
 7 \overline{) 7} & 1 & 6 & 4 & 0 & 9 & \\
 - 7 & 0 & & & & & \\
 \hline
 & 0 & 1 & 6 & & & \\
 - 1 & 4 & & & & & \\
 \hline
 & & 2 & 4 & & & \\
 - 2 & 1 & & & & & \\
 \hline
 & & & 3 & 0 & & \\
 - 2 & 8 & & & & & \\
 \hline
 & & & & 2 & 9 & \\
 - 2 & 8 & & & & & \\
 \hline
 & & & & & 1 &
 \end{array}
 \end{array}$$

$$Q = 102344, R = 1$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$\begin{aligned} 716409 &= 7 \times 102344 + 1 \\ &= 716408 + 1 \\ &= 716409 \end{aligned}$$

[illegible]

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$Q = 1356214, R = 2$$

d. $5143289 \div 68$

[illegible]

$$Q = 75636, R = 41$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$\begin{aligned} 5143289 &= 68 \times 75636 + 41 \\ &= 5143289 \end{aligned}$$

e. $3172056 \div 73$

$$\begin{array}{r} 43452 \\ 73 \overline{) 3172056} \\ \underline{-292} \downarrow \\ 252 \\ \underline{-219} \\ 330 \\ \underline{-292} \\ 385 \\ \underline{-365} \\ 206 \\ \underline{-146} \\ 60 \end{array}$$

$$Q = 43452, R = 60$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$\begin{aligned} 3172056 &= 73 \times 43452 + 60 \\ &= 3172056 \end{aligned}$$

f. $9120634 \div 87$

$$\begin{array}{r} 104834 \\ 87 \overline{) 9120634} \\ \underline{-87} \\ 420 \\ \underline{-348} \\ 726 \\ \underline{-696} \\ 303 \\ \underline{-261} \\ 424 \\ \underline{-348} \\ 76 \end{array}$$

$$Q = 104834, R = 76$$

g. $10632814 \div 129$

$$\begin{array}{r}
 8\ 2\ 4\ 2\ 4 \\
 1\ 2\ 9 \overline{) 10632814} \\
 \underline{-1032} \\
 312 \\
 \underline{-258} \\
 548 \\
 \underline{-516} \\
 321 \\
 \underline{-258} \\
 634 \\
 \underline{-516} \\
 118
 \end{array}$$

$$Q = 82424, R = 118$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$9120634 = 104834 \times 87 + 76$$

$$= 9120634$$

h. $6032854 \div 216$

$$\begin{array}{r} 27929 \\ 216 \overline{) 6032854} \\ \underline{-432} \downarrow \downarrow \downarrow \downarrow \\ 1712 \downarrow \downarrow \downarrow \downarrow \\ \underline{-1512} \downarrow \downarrow \downarrow \downarrow \\ 2008 \downarrow \downarrow \downarrow \downarrow \\ \underline{-1944} \downarrow \downarrow \downarrow \downarrow \\ 0645 \downarrow \downarrow \downarrow \downarrow \\ \underline{-432} \downarrow \downarrow \downarrow \downarrow \\ 2134 \downarrow \downarrow \downarrow \downarrow \\ \underline{-1944} \downarrow \downarrow \downarrow \downarrow \\ 190 \end{array}$$

$$Q = 27929, R = 190$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$6032854 = 27929 \times 216 + 190$$

$$= 6032854$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$10632814 = 82424 \times 129 + 118$$

$$= 10632814$$

i. $40632814 \div 437$

$$\begin{array}{r} 92981 \\ 437 \overline{) 40632814} \\ \underline{-3933} \downarrow \downarrow \downarrow \downarrow \\ 1302 \downarrow \downarrow \downarrow \downarrow \\ \underline{-874} \downarrow \downarrow \downarrow \downarrow \\ 4288 \downarrow \downarrow \downarrow \downarrow \\ \underline{-3933} \downarrow \downarrow \downarrow \downarrow \\ 3551 \downarrow \downarrow \downarrow \downarrow \\ \underline{-3496} \downarrow \downarrow \downarrow \downarrow \\ 554 \downarrow \downarrow \downarrow \downarrow \\ \underline{-437} \downarrow \downarrow \downarrow \downarrow \\ 117 \end{array}$$

$$Q = 92981, R = 117$$

Checking:

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$40632814 = 92981 \times 437 + 117$$

$$= 40632814$$

Assessment Time 3.9

1. Cost of 35 table = ₹ 12,320

$$\text{Cost of 1 table} = ₹ \frac{12,320}{35}$$

$$= ₹ 352$$

Hence, the cost of 1 table is ₹ 352.

$$\begin{array}{r} 352 \\ 35 \overline{) 12320} \\ \underline{-105} \downarrow \downarrow \downarrow \downarrow \\ 182 \downarrow \downarrow \downarrow \downarrow \\ \underline{-175} \downarrow \downarrow \downarrow \downarrow \\ 70 \downarrow \downarrow \downarrow \downarrow \\ \underline{-70} \downarrow \downarrow \downarrow \downarrow \\ 0 \end{array}$$

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2. Cost of 84 pencil boxes = ₹ 55,272

$$\begin{aligned}\text{Cost of 1 pencil box} &= ₹ \frac{55,272}{84} \\ &= ₹ 658\end{aligned}$$

Hence, the cost of 1 pencil box is ₹ 658.

$$\begin{array}{r} 658 \\ 84 \overline{) 55272} \\ \underline{-504} \downarrow \\ 487 \downarrow \\ \underline{-420} \downarrow \\ 672 \downarrow \\ \underline{-672} \\ 0 \end{array}$$

3. Total number of pins = 3,49,384

Pins in one packet = 68

$$\begin{aligned}\text{Total number of packets} &= \frac{349384}{68} \\ &= 5138\end{aligned}$$

Hence, there are 5138 packets.

$$\begin{array}{r} 5138 \\ 68 \overline{) 349384} \\ \underline{-340} \downarrow \downarrow \downarrow \\ 93 \downarrow \downarrow \downarrow \\ \underline{-68} \downarrow \downarrow \downarrow \\ 258 \downarrow \downarrow \downarrow \\ \underline{-204} \downarrow \downarrow \downarrow \\ 544 \downarrow \downarrow \downarrow \\ \underline{-544} \\ 0 \end{array}$$

4. Cost of 62 water tanks = ₹ 1,59,030

$$\begin{aligned}\text{Cost of 1 water tank} &= ₹ \frac{1,59,030}{62} \\ &= ₹ 2565\end{aligned}$$

Hence, the cost of 1 water tank is ₹ 2,565

$$\begin{array}{r} 2565 \\ 62 \overline{) 159030} \\ \underline{-124} \downarrow \downarrow \downarrow \\ 350 \downarrow \downarrow \downarrow \\ \underline{-310} \downarrow \downarrow \downarrow \\ 403 \downarrow \downarrow \downarrow \\ \underline{-372} \downarrow \downarrow \downarrow \\ 310 \downarrow \downarrow \downarrow \\ \underline{-310} \\ 0 \end{array}$$

5. Oranges packed in 698 boxes = 86,552

$$\begin{aligned}\text{Oranges packed in one box} &= \frac{86,552}{698} \\ &= 124\end{aligned}$$

Hence,, 124 oranges are packed in one box.

$$\begin{array}{r} 124 \\ 698 \overline{) 86552} \\ \underline{-698} \downarrow \downarrow \downarrow \\ 1675 \downarrow \downarrow \downarrow \\ \underline{-1396} \downarrow \downarrow \downarrow \\ 2792 \downarrow \downarrow \downarrow \\ \underline{-2792} \\ 0 \end{array}$$

$$\begin{array}{r}
 6. \quad \quad \quad 7713 \\
 267 \overline{) 2059634} \\
 \underline{-1869} \downarrow \downarrow \downarrow \\
 1906 \\
 \underline{-1869} \downarrow \downarrow \downarrow \\
 373 \\
 \underline{-267} \downarrow \downarrow \downarrow \\
 1064 \\
 \underline{-801} \\
 263
 \end{array}$$

So, required number = $267 - 623 = 4$

7. Product of two numbers = 147580

One number = 235

So, other number = $147580 \div 235$

= 628

$$\begin{array}{r}
 \quad \quad \quad 628 \\
 235 \overline{) 147580} \\
 \underline{-1410} \downarrow \downarrow \downarrow \\
 658 \\
 \underline{-470} \downarrow \downarrow \downarrow \\
 1880 \\
 \underline{-1880} \\
 0
 \end{array}$$

8. Product of two number = 3434697

One number = 357

Other number = $3434697 \div 357$

= 9621

9. Product of two numbers = 293480

One number = 230

Other number = $293480 \div 230$

= 1276

10. Dividend = Divisor $\times$ Quotient + Remainder

= $8321 \times 12870 + 345$

= $107091270 + 345$

= 107091615

11. A fruit vendor sells mangoes in 2 years (24 months) = 684000

So, he sells in one month = $684000 \div 24$

= 28500

Multiple Choice Questions:

1. (a)

2. (b)

3. (d)

4. (c)

5. (d)

Mental Maths

- a. 8643200 b. 22629600 c. 2973156000
d. $Q = 5674$, $R = 32$ e. 997650

CHAPTER-4: Multiples AND FACTORS

Assessment Time 4.1

1. a. 8, 7 b. 5, 6 and 7 c. 3, 7 and 5 d. 100
2. a. F b. T c. T d. F
3. a. Multiples of 5 are 5×1 , 5×2 , 5×3 , 5×4 , 5×5
i.e. 5, 10, 15, 20, 25
b. Multiples of 10 are 10×1 , 10×2 , 10×3 , 10×4 , 10×5
i.e. 10, 20, 30, 40, 50
c. Multiples of 15 are 15×1 , 15×2 , 15×3 , 15×4 , 15×5
i.e. 15, 30, 45, 60, 75
d. Multiples of 19 are 19×1 , 19×2 , 19×3 , 19×4 , 19×5
i.e. 19, 38, 57, 76, 95
e. Multiples of 25 are 25×1 , 25×2 , 25×3 , 25×4 , 25×5
i.e. 25, 50, 75, 100, 125

4. a.
$$\begin{array}{r} 8 \\ 10 \overline{) 80} \\ \underline{-80} \\ 0 \end{array}$$
 80 is exactly divisible by 8.
So, 80 is a multiple of 10.

b.
$$\begin{array}{r} 10 \\ 7 \overline{) 72} \\ \underline{-70} \\ 02 \end{array}$$
 72 is not exactly divisible by 7.
So, 72 is a not multiple of 7.

c.
$$\begin{array}{r} 14 \\ 11 \overline{) 155} \\ \underline{-11} \downarrow \\ 45 \\ \underline{-44} \\ 1 \end{array}$$
 155 is not exactly divisible by 11.
So, 155 is a not multiple of 11.

d.

$$\begin{array}{r}
 34 \\
 5 \overline{) 170} \\
 \underline{-15} \downarrow \\
 20 \\
 \underline{-20} \\
 0
 \end{array}$$

170 is exactly divisible by 5.

So, 170 is a multiple of 5.

5. a. 4th multiple of 8 = $4 \times 8 = 32$

b. 8th multiple of 7 = $8 \times 7 = 56$

c. 9th multiple of 13 = $9 \times 13 = 117$

d. 15th multiple of 12 = $15 \times 12 = 180$

6. a. $2 \times 12 = 24$, $3 \times 8 = 24$, $4 \times 6 = 24$, $2 \times 12 = 24$, $1 \times 24 = 24$

So, the factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24.

b. $2 \times 20 = 40$, $4 \times 10 = 40$, $5 \times 8 = 40$, $1 \times 40 = 40$

So, the factors of 40 are 1, 2, 4, 5, 8, 10, 20 and 40

c. $50 = 2 \times 25$, 5×10 , 1×50

So, the factors of 50 are 1, 2, 5, 10, 25 and 50

d. $2 \times 40 = 80$, $4 \times 20 = 80$, $5 \times 16 = 80$, $8 \times 10 = 80$, 1×80

So, the factors of 80 are 1, 2, 4, 5, 8, 10, 16, 20, 40 and 80

e. $3 \times 45 = 135$, $5 \times 27 = 135$, $1 \times 135 = 135$, $9 \times 15 = 135$

So, the factors of 135 are 1, 3, 5, 9, 15, 27, 45 and 135.

7. a.

$$\begin{array}{r}
 12 \\
 5 \overline{) 60} \\
 \underline{-5} \downarrow \\
 10 \\
 \underline{-10} \\
 0
 \end{array}$$

60 is exactly divisible by 5.

So, 5 is a factor of 60.

b.

$$\begin{array}{r}
 4 \\
 13 \overline{) 60} \\
 \underline{-52} \\
 8
 \end{array}$$

60 is not exactly divisible by 3.

So, 13 is not a factor of 60.

c.
$$\begin{array}{r} 9 \\ 15 \overline{) 135} \\ \underline{-135} \\ 0 \end{array}$$
 135 is exactly divisible by 15.
So, 15 is a factor of 135.

d.
$$\begin{array}{r} 10 \\ 8 \overline{) 84} \\ \underline{-8} \downarrow \\ 04 \\ \underline{-00} \\ 4 \end{array}$$
 84 is not exactly divisible by 5.
So, 8 is a not factor of 84.

8. $1 \times 130 = 130$, $2 \times 65 = 130$, $5 \times 26 = 130$, $10 \times 13 = 130$
1, 2, 5, 10, 26, 65 and 130 are factors of 130.

Smallest factor of 130 = 1, Largest factor of 130 = 130

9. Smallest factor of 225 = 1, Largest factor of 225 = 225

Sum of smallest and largest factor of 225 = $225 + 1 = 226$

10. a.
$$\begin{array}{r} 97 \\ 6 \overline{) 584} \\ \underline{-54} \downarrow \\ 44 \\ \underline{-42} \\ 2 \end{array}$$
 584 is not exactly divisible by 6.
So, 6 is a not factor of 584.

b.
$$\begin{array}{r} 45 \\ 8 \overline{) 364} \\ \underline{-32} \downarrow \\ 44 \\ \underline{-40} \\ 4 \end{array}$$
 364 is not exactly divisible by 8.
So, 8 is a not factor of 364.

c.
$$\begin{array}{r} 183 \\ 5 \overline{) 915} \\ \underline{-5} \downarrow \\ 41 \downarrow \\ \underline{-40} \downarrow \\ 15 \\ \underline{-15} \\ 0 \end{array}$$
 915 is exactly divisible by 5.
So, 5 is a factor of 915.

b.

$$\begin{array}{r}
 203 \\
 15 \overline{) 3050} \\
 \underline{-30} \downarrow \downarrow \\
 050 \\
 \underline{-45} \\
 5
 \end{array}$$

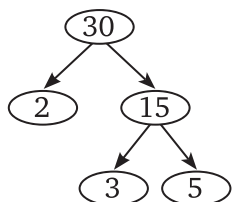
3050 is not exactly divisible by 15.
So, 15 is not a factor of 3050.

Assessment Time 4.2

1. a. F b. T c. F d. T
2. a. $716\boxed{3} =$ This number ended with digit-3.
So, it is an odd number.
- b. $814\boxed{2} =$ This number ended with digit-2.
So, it is an even number.
- c. $514\boxed{8} =$ This number ended with digit-8.
So, it is an even number.
- d. $414\boxed{0} =$ This number ended with digit-0.
So, it is an even number.
- e. $5196\boxed{7} =$ This number ended with digit-7.
So, it is an odd number.
- f. $2013\boxed{7} =$ This number ended with digit-7.
So, it is an odd number.
- g. $20160\boxed{2} =$ This number ended with digit-2.
So, it is an even number.
- h. $1896\boxed{9} =$ This number ended with digit-9.
So, it is an odd number.
- i. $3170\boxed{8} =$ This number ended with digit-8.
So, it is an even number.
- j. $6168\boxed{4} =$ This number ended with digit-4.
So, it is an even number.
3. a. Factor of 47 are 1 and 47
47 has only two factors. So, it is a prime number.
- b. Factor of 89 are 1 and 89
89 has only two factors. So, it is a prime number.
- c. Factor of 76 are 1, 2, 4, 19, 38 and 76.
76 has more than two factors. So, it is not a prime number.

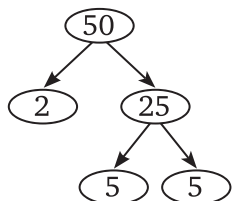
- d. Factor of 84 are 1, 2, 4, 6, 7, 12, 14, 21, 28, 42 and 84.
84 has more than two factors. So, it is not a prime number.
- e. Factor of 104 are 1, 2, 4, 8, 13, 26, 52 and 104
104 has more than two factors. So, it is not a prime number.
- f. Factor of 139 are 1 and 139
139 has only two factors. So, it is a prime number.
- g. Factor of 169 are 1, 13 and 169.
169 has more than two factors. So, it is not a prime number.
- h. Factor of 225 are 1, 3, 5, 9, 25, 45, 75 and 225
225 has more than two factors. So, it is not a prime number.
- i. Factor of 309 are 1, 3, 103 and 309.
309 has more than two factors. So, it is not a prime number.
- j. Factor of 161 are 1, 7, 23 and 161
161 has more than two factors. So, it is not a prime number.
4. Prime number between 12 and 50 are 13, 17, 19, 23, 29, 31, 37, 41, 43 and 47
5. Composite numbers between 30 and 65 are 30, 32, 33, 34, 35, 36, 38, 39, 40, 42, 44, 45, 46, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 60, 62, 63 and 65
6. a. $11, 13 = (13 - 11) = 2$
The difference between the two numbers are 2.
So, they are twin prime numbers.
- b. $8, 11 = (11 - 8) = 3$
The difference between these two number are 3.
So, they are not twin prime number.
- c. $9, 11 = (11 - 9) = 2$
The difference between these numbers are 2.
So, they are twin prime numbers.
- d. $5, 7 = (7 - 5) = 2$
The difference between these numbers are 2.
So, they are twin prime numbers.

7. a.



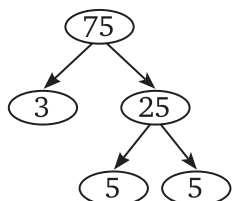
$$30 = 2 \times 3 \times 5$$

c.



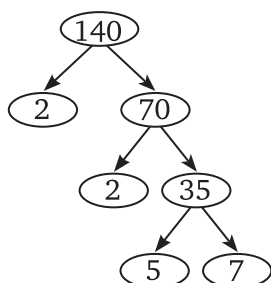
$$50 = 2 \times 5 \times 5$$

e.



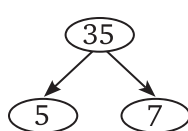
$$75 = 3 \times 5 \times 5$$

g.



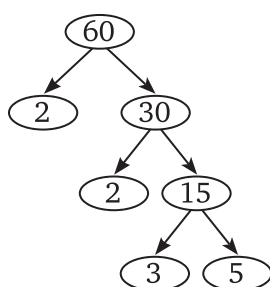
$$140 = 2 \times 2 \times 5 \times 7$$

b.



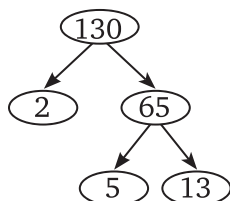
$$35 = 5 \times 7$$

d.



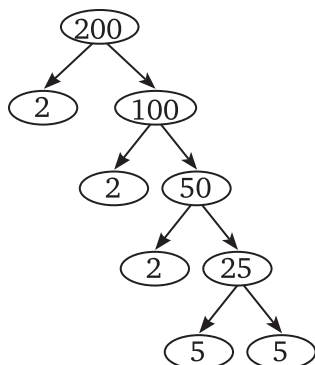
$$60 = 2 \times 2 \times 3 \times 5$$

f.



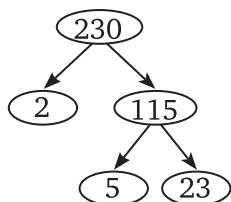
$$130 = 2 \times 5 \times 13$$

h.



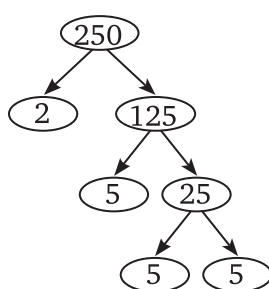
$$200 = 2 \times 2 \times 2 \times 5 \times 5$$

i.



$$230 = 2 \times 5 \times 23$$

j.



$$250 = 2 \times 5 \times 5 \times 5$$

8. a.

2	90
3	45
3	15
5	5
	1

$$90 = 2 \times 3 \times 3 \times 5$$

b.

2	130
5	65
13	13
	1

$$130 = 2 \times 5 \times 13$$

c.

2	160
2	80
2	40
2	20
2	10
5	5
	1

$$160 = 2 \times 2 \times 2 \times 2 \times 2 \times 5$$

d.

3	225
3	75
5	25
5	5
	1

$$225 = 3 \times 3 \times 5 \times 5$$

e.

2	300
2	150
3	75
5	25
5	5
	1

$$300 = 2 \times 2 \times 3 \times 5 \times 5$$

f.

2	350
5	175
5	35
7	7
	1

$$350 = 2 \times 5 \times 5 \times 7$$

g.

2	440
2	220
2	110
5	55
11	11
	1

$$440 = 2 \times 2 \times 2 \times 5 \times 11$$

i.

2	780
2	390
3	195
5	65
13	13
	1

$$780 = 2 \times 2 \times 3 \times 5 \times 13$$

h.

2	600
2	300
2	150
3	75
5	25
5	5
	1

$$600 = 2 \times 2 \times 2 \times 3 \times 5 \times 5$$

j.

2	950
5	475
5	95
19	19
	1

$$950 = 2 \times 5 \times 5 \times 19$$

Good Health

2	96
2	48
2	24
2	12
2	6
3	3
	1

$$\therefore 96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

Yes, we participate in games.

Critical Thinking Skill

(13, 31), (17, 71), (37, 73), (79, 97)

Subject Link

$$36 = 2 \times 2 \times 3 \times 3$$

Assessment Time 4.3**1. Divisibility by 2.**

- a. 8163 $\boxed{4}$ Since, the ones place digit is even.
So, it is divisible by 2.
- b. 4260 $\boxed{0}$ Since, the ones place digit is even.
So, it is divisible by 2.
- c. 60816 $\boxed{3}$ Since, the ones place digit is not even.
So, it is not divisible by 2.
- d. 71642 $\boxed{8}$ Since, the ones place digit is even.
So, it is divisible by 2.
- e. 5073 $\boxed{2}$ Since, the ones place digit is even.
So, it is divisible by 2.
- f. 41634 $\boxed{8}$ Since, the ones place digit is even.
So, it is divisible by 2.
- g. 7717 $\boxed{6}$ Since, the ones place digit is even.
So, it is divisible by 2.
- h. 91063 $\boxed{3}$ Since, the ones place digit is not even.
So, it is not divisible by 2.

Divisibility by 4

- a. 816 $\boxed{34}$ 34 is not divisible by 4.
So, 81634 is not divisible by 4.
- b. 426 $\boxed{00}$ 00 is divisible by 4.
So, 42600 is divisible by 4.
- c. 6081 $\boxed{63}$ 63 is not divisible by 4.
So, 608163 is not divisible by 4.
- d. 7164 $\boxed{28}$ 28 is divisible by 4.
So, 716428 is divisible by 4.
- e. 507 $\boxed{32}$ 32 is divisible by 4.
So, 50732 is divisible by 4.
- f. 4163 $\boxed{48}$ 48 is divisible by 4.
So, 416348 is divisible by 4.
- g. 771 $\boxed{76}$ 76 is divisible by 4.
So, 77176 is divisible by 4.
- h. 9106 $\boxed{33}$ 33 is not divisible by 4.
So, 910633 is not divisible by 4.

Divisibility by 8

- a. $81\overline{634}$ 634 is not divisible by 8.
So, 81634 is not divisible by 8.
- b. $42\overline{600}$ 600 is divisible by 8.
So, 42600 is divisible by 8.
- c. $608\overline{163}$ 163 is not divisible by 8.
So, 608163 is not divisible by 8.
- d. $716\overline{428}$ 428 is not divisible by 8.
So, 716428 is not divisible by 8.
- e. $50\overline{732}$ 732 is not divisible by 8.
So, 50732 is not divisible by 8.
- f. $416\overline{348}$ 348 is not divisible by 8.
So, 416348 is not divisible by 8.
- g. $77\overline{176}$ 176 is divisible by 8.
So, 77176 is divisible by 8.
- h. $910\overline{633}$ 633 is not divisible by 8.
So, 910633 is not divisible by 8.

2. Divisibility by 3

- a. 47222
Sum of all digits of 47222 = $4 + 7 + 2 + 2 + 2 = 17$
Since, 17 is not divisible by 3.
So, 47222 is not divisible by 3.
- b. 5263248
Sum of all digits of 5263248 = $5 + 2 + 6 + 3 + 2 + 4 + 8 = 30$
Since, 30 is divisible by 3.
So, 5263248 is divisible by 3.
- c. 856925
Sum of all digits of 856925 = $8 + 5 + 6 + 9 + 2 + 5 = 35$
Since, 35 is not divisible by 3.
So, 856925 is not divisible by 3.
- d. 724816
Sum of all digits of 724816 = $7 + 2 + 4 + 8 + 1 + 6 = 28$
Since, 28 is not divisible by 3.
So, 724816 is not divisible by 3.

e. 509343

Sum of all digits of 509343 = $5+0+9+3+4+3 = 24$

Since, 24 is divisible by 3.

So, 509343 is divisible by 3.

f. 329139

Sum of all digits of 329139 = $3+2+9+1+3+9 = 27$

Since, 27 is divisible by 3.

So, 329139 is divisible by 3.

g. 3728965

Sum of all digits of 3728965 = $3+7+2+8+9+6+5 = 40$

Since, 40 is not divisible by 3.

So, 3728965 is not divisible by 3.

h. 232857

Sum of all digits of 232857 = $2+3+2+8+5+7 = 27$

Since, 27 is divisible by 3.

So, 232857 is divisible by 3.

Divisibility by 9

a. 47222

Sum of all digits of 47222 = $4 + 7 + 2 + 2 + 2 = 17$

Since, 17 is not divisible by 9.

So, 47222 is also not divisible by 9.

b. 5263248

Sum of all digits of 5263248 = $5+2+6+3+2+4+8 = 30$

Since, 30 is not divisible by 9.

So, 5263248 is also not divisible by 9.

c. 856925

Sum of all digits of 856925 = $8+5+6+9+2+5 = 35$

Since, 35 is not divisible by 9.

So, 856925 is also not divisible by 9.

d. 724816

Sum of all digits of 724816 = $7+2+4+8+1+6 = 28$

Since, 28 is not divisible by 9.

So, 724816 is also not divisible by 9.

e. 509343

Sum of all digits of 509343 = $5+0+9+3+4+3 = 24$

Since, 24 is not divisible by 9.

So, 509343 is also divisible by 9.

f. 329139

Sum of all digits of 329139 = $3+2+9+1+3+9 = 27$

Since, 27 is divisible by 9.

So, 329139 is also divisible by 9.

g. 3728965

Sum of all digits of 3728965 = $3+7+2+8+9+6+5 = 40$

Since, 40 is not divisible by 9.

So, 3728965 is also not divisible by 9.

h. 232857

Sum of all digits of 232857 = $2+3+2+8+5+7 = 27$

Since, 27 is divisible by 9.

So, 232857 is also divisible by 9.

3. a. 246790 → Since, the ones place digit is 0.

So, it is divisible by 2.

Sum of all digits of 246790 = $2+4+6+7+9+0 = 28$

28 is not divisible by 3. So, 246790 is not divisible by 6.

b. 1203723 → Since, the ones place digit is 3.

So, it is not divisible by 2.

So, 1203723 is not divisible by 6.

c. 192870 → Since, the ones place digit is 0.

So, it is divisible by 2.

Sum of all digits of 192870 = $1+9+2+8+7+0 = 27$

27 is divisible by 3. So, 192870 is divisible by 6.

d. 183706 → Since, the ones place digit is 6.

So, it is divisible by 2.

Sum of all digits of 183706 = $1+8+3+7+0+6 = 25$

25 is not divisible by 3. So, 183706 is not divisible by 6.

e. 1735830 → Since, the ones place digit is 0.

So, it is divisible by 2.

Sum of all digits of 1735830 = $1+7+3+5+8+3+0 = 27$

27 is divisible by 3. So, 1735830 is divisible by 6.

f. 57924 → Since, the ones place digit is 4.

So, it is divisible by 2.

Sum of all digits of 57924 = $5+7+9+2+4 = 27$

27 is divisible by 3. So, 57924 is divisible by 6.

g. 963427 → Since, the ones place digit is 7.

So, it is not divisible by 2.

So, 963427 is not divisible by 6.

h. 579432 → Since, the ones place digit is 2.

So, it is divisible by 2.

Sum of all digits of 579432 = $5+7+9+4+3+2 = 30$

30 is divisible by 3. So, 579432 is divisible by 6.

4. a. $67564 = 6756 - 8(2 \times 4)$

$$= 6756 - 8 = 6748$$

$$6748 = 674 - 16(2 \times 8) = 658$$

$$658 = 65 - 16(2 \times 8) = 49$$

49 is divisible by 7. So, 67564 is also divisible by 7.

b. $50324 = 5032 - 8 = 5024$

$$5024 = 502 - 8 = 494$$

$$494 = 49 - 8 = 37$$

37 is not divisible by 7. So, 50324 is also not divisible by 7.

c. $62678 = 6267 - 16 = 6251$

$$6251 = 625 - 2 = 623$$

$$623 = 62 - 6 = 56$$

56 is divisible by 7. So, 62678 is divisible by 7.

d. $916205 = 91620 - 10 = 91610$

$$9161 - 0 = 9161 = 916 - 2 = 914$$

$$91 - 8 = 83 = 8 - 6 = 2$$

Not divisible by 7.

e. $37205 = 3720 - 10 = 3610 = 371 - 0 = 371$

$$37 - 2 = 35, \text{ divisible by } 7$$

f. $67424 = 6742 - 8 = 6734$

$$673 - 8 = 665 = 66 - 10 = 56$$

Divisible by 7.

- g. $1225336 = 122533 - 12 = 122521$
 $12252 - 2 = 12250 = 1225 - 0 = 1225$
 $122 - 10 = 112 = 11 - 4 = 7$
 Divisible by 7
- h. $310283 = 31028 - 6 = 31022$
 $3102 - 4 = 3098 = 309 - 16 = 293$
 $29 - 6 = 23$, not divisible by 7.

5. Divisibility by 5

- a. $5728\boxed{5}$ → Since ones place digit is 5.
 So, 57285 is divisible by 5.
- b. $71285\boxed{0}$ → Since ones place digit is 0.
 So, 712850 is divisible by 5.
- c. $81632\boxed{5}$ → Since ones place digit is 5.
 So, 816325 is divisible by 5.
- d. $196205\boxed{5}$ → Since ones place digit is 5.
 So, 1962055 is divisible by 5.
- e. $91063\boxed{0}$ → Since ones place digit is 0.
 So, 910630 is divisible by 5.
- f. $47328\boxed{2}$ → Since ones place digit is 2.
 So, 473282 is not divisible by 5.
- g. $81906\boxed{5}$ → Since ones place digit is 5.
 So, 819065 is divisible by 5.
- h. $80630\boxed{0}$ → Since ones place digit is 0.
 So, 806300 is divisible by 5.

Divisibility by 10

- a. $5728\boxed{5}$ → Since ones place digit is 5.
 So, 57285 is not divisible by 10.
- b. $71285\boxed{0}$ → Since ones place digit is 0.
 So, 712850 is divisible by 10.
- c. $81632\boxed{5}$ → Since ones place digit is 5.
 So, 816325 is not divisible by 10.
- d. $196205\boxed{5}$ → Since ones place digit is 5.
 So, 1962055 is not divisible by 10.
- e. $91063\boxed{0}$ → Since ones place digit is 0.
 So, 910630 is divisible by 10.

- f. 47328 $\boxed{2}$ → Since ones place digit is 2.
So, 473282 is not divisible by 10.
- g. 81906 $\boxed{5}$ → Since ones place digit is 5.
So, 819065 is not divisible by 10.
- h. 80630 $\boxed{0}$ → Since ones place digit is 0.
So, 806300 is divisible by 10.
6. a. Sum of digits of 5728_4 = 5 + 7 + 2 + 8 + 4 = 26
So, we must add 1 to 26 to make it 27 which is divisible by 3. Hence, the required smallest digit is 1.
- b. Sum of digits of 6026__25 = 6+0+2+6+2+5 = 21
So, we must add 6 to 21 to make it 27, which is divisible by 9. Hence, the required smallest number is 6.
- c. 50428__6 → 6 is even it is divisible by 2.
Now, sum of digits of 5+0+4+2+8+6 = 25
So, we must add 2 to make it 27, which is divisible by 3.
Hence, the required smallest number is 2.
- d. Sum of digits of 9106__28 = 9+1+0+6+2+8 = 26
So, we must add 1 to make it 27, which is divisible by 9.
Hence, the required smallest number is 1.
- e. 3728, according to divisibility by last three digits should be divisible by 8. In 37285x blank space is replaced by x.
- $$\begin{array}{r}
 107 \\
 8 \overline{) 85x} \\
 \underline{-8} \downarrow \downarrow \\
 05x \\
 \underline{-56} \\
 0
 \end{array}$$
- So, 85x should be divided by 8.
- If x is replaced by 6 then 5x is exactly divisible by 8.
- Hence, the required smallest digit is 6.

Assessment Time 4.4

1. a. 4 = 1, $\boxed{2}$, 4
10 = 1, $\boxed{2}$, 5, 10
Common factor of 4 and 10 are 1 and 2 but 2 is the highest common factor.
Hence, the HCF of 4 and 10 are 2.
- b. 10 = 1, 2, 5, 10
18 = 1, 2, 3, 6, 9, 18
Common factor of 10 and 18 are 1 and 2.
But 2 is the highest common factor.
Hence, the HCF of 10 and 18 is 2.

- c. $15 = 1, 3, 5, 15$
 $18 = 1, 2, 3, 6, 9, 18$
Common factor of 15 and 18 are 1 and 3.
But 3 is the highest common factor.
Hence, the HCF of 15 and 18 are 3.
- d. $40 = 1, 2, 4, 5, 8, 10, 20, 40$
 $60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60$
The highest common factor of 40 and 60 is 20.
So, HCF of 40 and 60 is 20.
- e. $15 = 1, 3, 5, 15$
 $25 = 1, 5, 25$
 $40 = 1, 2, 4, 5, 8, 10, 20, 40$
The highest common factor of 15, 25 and 40 is 5.
So, HCF of 15, 25 and 40 is 5.
- f. $12 = 1, 2, 3, 4, 6, 12$
 $16 = 1, 2, 4, 8, 16$
 $30 = 1, 2, 3, 5, 6, 10, 15, 30$
The highest common factor of 12, 16 and 30 is 2.
So, the HCF of 12, 16 and 30 is 2.
- g. $35 = 1, 5, 7, 35$
 $70 = 1, 2, 5, 7, 10, 14, 35, 70$
 $105 = 1, 3, 5, 7, 15, 21, 35, 105$
The highest common factor of 35, 70 and 105 is 35.
So, HCF of 35, 70 and 105 is 35.
- h. $40 = 1, 2, 4, 5, 8, 10, 20, 40$
 $80 = 1, 2, 4, 5, 8, 10, 16, 20, 40, 80$
 $90 = 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90$
The highest common factor of 40, 80 and 90 is 10
So, the HCF of 40, 80 and 90 is 10.
- i. $50 = 1, 2, 5, 10, 25, 50$
 $60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60$
 $80 = 1, 2, 4, 5, 8, 10, 16, 20, 40, 80$
The highest common factor of 50, 60 and 80 is 10.
So, HCF of 50, 60 and 80 is 10.

2. a.

$$\begin{array}{r|l} 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 5 & 95 \\ \hline 19 & 19 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 25 &= \boxed{5} \times 5 \\ 95 &= \boxed{5} \times 19 \\ \text{HCF} &= 5 \end{aligned}$$

b.

$$\begin{array}{r|l} 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 35 &= 5 \times 7 \\ 80 &= 2 \times 2 \times 2 \times 2 \times 5 \\ \text{HCF} &= 5 \end{aligned}$$

c.

$$\begin{array}{r|l} 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 120 \\ \hline 2 & 60 \\ \hline 2 & 30 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 90 &= 2 \times 3 \times 3 \times 5 \\ 120 &= 2 \times 2 \times 2 \times 3 \times 5 \\ \text{HCF} &= 2 \times 3 \times 5 = 30 \end{aligned}$$

d.

$$\begin{array}{r|l} 2 & 140 \\ \hline 2 & 70 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 180 \\ \hline 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 140 &= 2 \times 2 \times 5 \times 7 \\ 180 &= 2 \times 2 \times 3 \times 3 \times 5 \\ \text{HCF} &= 2 \times 2 \times 5 = 20 \end{aligned}$$

e.

$$\begin{array}{r|l} 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 12 &= 2 \times 2 \times 3 \\ 32 &= 2 \times 2 \times 2 \times 2 \times 2 \\ 36 &= 2 \times 2 \times 3 \times 3 \\ \text{HCF} &= 2 \times 2 = 4 \end{aligned}$$

f.

$$\begin{array}{r|l} 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 28 \\ \hline 2 & 14 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 21 &= 3 \times 7 \\ 28 &= 2 \times 2 \times 7 \\ 35 &= 5 \times 7 \\ \text{HCF} &= 7 \end{aligned}$$

g.

5	65
13	13
	1

5	85
17	17
	1

2	130
5	65
13	13
	1

$65 = 5 \times 13$
 $85 = 5 \times 17$
 $130 = 2 \times 5 \times 13$
 HCF = 5

h.

2	56
2	28
2	14
7	7
	1

2	80
2	40
2	20
2	10
5	5
	1

2	120
2	60
2	30
3	15
5	5
	1

$56 = 2 \times 2 \times 2 \times 7$
 $85 = 2 \times 2 \times 2 \times 2 \times 5$
 $130 = 2 \times 2 \times 2 \times 3 \times 5$
 HCF = $2 \times 2 \times 2 = 8$

i.

2	150
3	75
5	25
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

2	220
2	110
5	55
11	11
	1

$150 = 2 \times 3 \times 5 \times 5$
 $180 = 2 \times 2 \times 3 \times 3 \times 5$
 $220 = 2 \times 2 \times 5 \times 11$
 HCF = $2 \times 5 = 10$

3. a.

$$\begin{array}{r}
 12 \overline{) 20} (1 \\
 \underline{- 12} \\
 8 \overline{) 12} (1 \\
 \underline{- 8} \\
 4 \overline{) 8} (2 \\
 \underline{- 8} \\
 0
 \end{array}$$

Since last divisor is 4.
Hence, the HCF of 12 and 20 is 4

b.

$$\begin{array}{r}
 30 \overline{) 50} (1 \\
 \underline{- 30} \\
 20 \overline{) 30} (1 \\
 \underline{- 20} \\
 10 \overline{) 20} (2 \\
 \underline{- 20} \\
 0
 \end{array}$$

Since last divisor is 10.
Hence, the HCF of 30 and 50 is 10.

$$\begin{array}{r}
 \text{c. } 60 \overline{) 85} (1 \\
 \underline{-60} \\
 25 \overline{) 60} (2 \\
 \underline{-50} \\
 10 \overline{) 25} (2 \\
 \underline{-20} \\
 5 \overline{) 10} (2 \\
 \underline{-10} \\
 0
 \end{array}$$

Since last divisor is 5.

Hence, the HCF of 60 and 85 is 5.

$$\begin{array}{r}
 \text{d. } 40 \overline{) 95} (2 \\
 \underline{-80} \\
 15 \overline{) 40} (2 \\
 \underline{-30} \\
 5 \overline{) 15} (3 \\
 \underline{-15} \\
 0
 \end{array}$$

Since last divisor is 5.

Hence, the HCF of 95 and 40 is 5.

$$\begin{array}{r}
 \text{e. } 120 \overline{) 150} (1 \\
 \underline{-120} \\
 30 \overline{) 120} (4 \\
 \underline{-120} \\
 0
 \end{array}$$

Since last divisor is 30.

Hence, the HCF of 120 and 150 is 30.

$$\begin{array}{r}
 \text{f. } 40 \overline{) 80} (2 \quad 40 \overline{) 95} (2 \\
 \underline{-80} \quad \underline{-80} \\
 0 \quad 15 \overline{) 40} (2 \\
 \underline{-30} \\
 5 \overline{) 15} (3 \\
 \underline{-15} \\
 0
 \end{array}$$

Since last divisor is 5.

Hence, the HCF of 40, 80 and 95 is 5.

g. First we divide 18 and 54

$$\begin{array}{r}
 18 \overline{) 54} (3 \\
 \underline{-54} \\
 0
 \end{array}$$

Now, we divide 90 by 18

$$\begin{array}{r}
 18 \overline{) 90} (5 \\
 \underline{-90} \\
 0
 \end{array}$$

Hence, the last divisor is 18.

So, the HCF of 18, 54 and 90 is 18.

$$\begin{array}{r}
 \text{h.} \quad 44 \overline{) 66} (1 \\
 \quad \underline{-44} \\
 \quad \quad 22 \overline{) 44} (2 \\
 \quad \quad \underline{-44} \\
 \quad \quad \quad 00
 \end{array}
 \qquad
 \begin{array}{r}
 22 \overline{) 132} (6 \\
 \quad \underline{-132} \\
 \quad \quad 0
 \end{array}$$

Hence, the last divisor is 22.

So, HCF of 44, 66 and 132 is 22.

$$\begin{array}{r}
 \text{i.} \quad 35 \overline{) 105} (3 \\
 \quad \underline{-105} \\
 \quad \quad 0
 \end{array}
 \qquad
 \begin{array}{r}
 35 \overline{) 200} (5 \\
 \quad \underline{-175} \\
 \quad \quad 25 \overline{) 35} (1 \\
 \quad \quad \underline{-25} \\
 \quad \quad \quad 10 \overline{) 25} (2 \\
 \quad \quad \quad \underline{-20} \\
 \quad \quad \quad \quad 5 \overline{) 10} (2 \\
 \quad \quad \quad \quad \underline{-10} \\
 \quad \quad \quad \quad \quad 5
 \end{array}$$

Since, the last divisor is 5.

Hence, the HCF of 35, 105
and 200 is 5.

$$\begin{array}{r}
 \text{4. a.} \quad 40 \overline{) 53} (1 \\
 \quad \underline{-40} \\
 \quad \quad 13 \overline{) 40} (3 \\
 \quad \quad \underline{-39} \\
 \quad \quad \quad 1
 \end{array}$$

Since, the HCF of 40 and 53 is 1
So, they are co-prime.

$$\begin{array}{r}
 \text{b.} \quad 55 \overline{) 83} (1 \\
 \quad \underline{-55} \\
 \quad \quad 28 \overline{) 55} (1 \\
 \quad \quad \underline{-28} \\
 \quad \quad \quad 27 \overline{) 28} (1 \\
 \quad \quad \quad \underline{-27} \\
 \quad \quad \quad \quad 1
 \end{array}$$

Since, the HCF of 55 and 83 is 1
So, they are co-prime.

$$\begin{array}{r}
 \text{c.} \quad 15 \overline{) 28} (1 \\
 \quad \underline{-15} \\
 \quad \quad 13 \overline{) 15} (1 \\
 \quad \quad \underline{-13} \\
 \quad \quad \quad 2 \overline{) 13} (6 \\
 \quad \quad \quad \underline{-12} \\
 \quad \quad \quad \quad 1
 \end{array}$$

Since, the HCF of 15 and 28 is 1
So, they are co-prime.

d. $23 \overline{) 37} (1$

$$\begin{array}{r} -23 \\ \hline \end{array}$$

$$14 \overline{) 23} (1$$

$$\begin{array}{r} -14 \\ \hline \end{array}$$

$$9 \overline{) 14} (1$$

$$\begin{array}{r} -9 \\ \hline \end{array}$$

$$5 \overline{) 9} (1$$

$$\begin{array}{r} -5 \\ \hline \end{array}$$

$$4 \overline{) 5} (1$$

$$\begin{array}{r} -4 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \hline \end{array}$$

Since, the HCF of 23 and 37 is 1
So, they are co-prime.

e. $43 \overline{) 87} (2$

$$\begin{array}{r} -86 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \hline \end{array}$$

Since, the HCF of 23 and 37 is 1
So, they are co-prime.

f. $97 \overline{) 104} (1$

$$\begin{array}{r} -97 \\ \hline \end{array}$$

$$7 \overline{) 97} (13$$

$$\begin{array}{r} -7 \\ \hline \end{array}$$

$$27$$

$$\begin{array}{r} -21 \\ \hline \end{array}$$

$$6 \overline{) 7} (1$$

$$\begin{array}{r} -6 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \hline \end{array}$$

Since, the HCF of 23 and 37 is 1
So, they are co-prime.

5. Required number = HCF of $(131 - 7, 160 - 5, 223 - 6)$

i.e.

$$124 \overline{) 155} (1$$

$$\begin{array}{r} -124 \\ \hline \end{array}$$

$$31 \overline{) 124} (4$$

$$\begin{array}{r} -124 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \hline \end{array}$$

$$124, 155, 217$$

$$31 \overline{) 217} (7$$

$$\begin{array}{r} -217 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \hline \end{array}$$

So, required number is 31.

6. Required length of tape = HCF of 185 and 140

$$\begin{array}{r}
 140 \overline{) 185} (1 \\
 \underline{-140} \\
 45 \overline{) 140} (3 \\
 \underline{-135} \\
 5 \overline{) 45} (9 \\
 \underline{-45} \\
 0
 \end{array}$$

Hence, required length of tape is 5 m.

7. Required number = HCF of $(888 - 3, 1370 - 7)$

$$= \text{HCF of } 885, 1363 = 1$$

$$\begin{array}{r}
 885 \overline{) 1363} (1 \\
 \underline{-885} \\
 478 \overline{) 885} (1 \\
 \underline{-478} \\
 407 \overline{) 478} (1 \\
 \underline{-407} \\
 71 \overline{) 407} (5 \\
 \underline{-355} \\
 52 \overline{) 71} (1 \\
 \underline{-52} \\
 19 \overline{) 52} (2 \\
 \underline{-38} \\
 14
 \end{array}
 \quad
 \begin{array}{r}
 14 \overline{) 19} (1 \\
 \underline{-14} \\
 5 \overline{) 14} (1 \\
 \underline{-10} \\
 4 \overline{) 5} (1 \\
 \underline{-4} \\
 1 \overline{) 4} (4 \\
 \underline{-4} \\
 0
 \end{array}$$

8. Required container = HCF of 250, 345 = 5 L

$$\begin{array}{r}
 250 \overline{) 345} (1 \\
 \underline{-250} \\
 95 \overline{) 250} (2 \\
 \underline{-190} \\
 60 \overline{) 95} (1 \\
 \underline{-60} \\
 35 \overline{) 60} (5 \\
 \underline{-35} \\
 25
 \end{array}
 \quad
 \begin{array}{r}
 25 \overline{) 35} (1 \\
 \underline{-25} \\
 10 \overline{) 25} (2 \\
 \underline{-20} \\
 5 \overline{) 10} (2 \\
 \underline{-10} \\
 0
 \end{array}$$

9. Required garlands = HCF of 72, 120, 192

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$192 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

$$\text{So, HCF} = 2 \times 2 \times 2 \times 3 = 24$$

SEL

10. Required rows HCF of 48, 56, 72

$$48 = 2 \times 2 \times 2 \times 3$$

$$56 = 2 \times 2 \times 2 \times 7$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$\text{So, HCF} = 2 \times 2 \times 2 = 8$$

Assessment Time 4.5

1. a. Multiple of 2 are 2, 4, 6, 8, 10, 12, 14, 16
Multiple of 7 are 7, 14, 21, 28, 35, 42 49
The least common multiple of 2 and 7 is 14
So, the LCM of 2 and 7 is 14.
- b. Multiple of 12 are 12, 24, 36, 48, 60, 72, 84,
Multiple of 20 are 20, 40, 60, 80, 100, 120
The least common multiple of 12 and 20 is 60
So, the LCM of 12 and 20 is 60.
- c. Multiple of 8 are 8, 16, 24, 32, 40, 48, 56, 64,
Multiple of 12 are 12, 24, 36, 48, 60, 72, 84
The least common multiple of 8 and 12 is 24
So, the LCM of 8 and 12 is 24.
- d. Multiple of 5 are 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 ...
Multiple of 15 are 15, 30, 45, 60, 75, 90, 105, 120, ...
Multiple of 20 are 20, 40, 60, 80, 100, 120, 140,
The least common multiple of 5, 15 and 20 is 60
So, the LCM of 5, 15 and 20 is 60.
- e. Multiple of 10 are 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190,
Multiple of 25 are 25, 50, 75, 100, 125, 150, 175, 200, ...

Multiple of 30 are 30, 60, 90, 120, 150, 180, 210, 240, ...

The least common multiple of 10, 25 and 30 is 150

So, the LCM of 10, 25 and 30 is 150.

- f. Multiple of 12 are 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180, 192, 204, 216, 228, 240, 252, ...

Multiple of 16 are 16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 192, 208, 224, 240, 256, ...

Multiple of 20 are 20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, ...

The least common multiple of 12, 16 and 20 is 240

So, the LCM of 12, 16 and 20 is 240.

2. a.

$$\begin{array}{r|l} 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$10 = \boxed{2} \times 5$$

$$18 = \boxed{2} \times 3 \times 3$$

$$\text{LCM} = 2 \times 3 \times 3 \times 5 = 90$$

b.

$$\begin{array}{r|l} 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$25 = 5 \times 5$$

$$40 = 2 \times 2 \times 2 \times 5$$

$$\text{LCM} = 5 \times 2 \times 2 \times 2 \times 5 = 200$$

c.

$$\begin{array}{r|l} 2 & 60 \\ \hline 2 & 30 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$90 = 2 \times 3 \times 3 \times 5$$

$$\begin{aligned} \text{LCM} &= 2 \times 5 \times 3 \times 2 \times 3 \\ &= 180 \end{aligned}$$

d.

$$\begin{array}{r|l} 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 130 \\ \hline 5 & 65 \\ \hline 13 & 13 \\ \hline & 1 \end{array}$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$90 = 2 \times 5 \times 13$$

$$\begin{aligned} \text{LCM} &= 2 \times 5 \times 8 \times 13 \\ &= 1040 \end{aligned}$$

e.

2	10	5	25	3	75
5	5	5	5	5	25
	1		1	5	5
					1

$$10 = 2 \times 5$$

$$25 = 5 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$\text{LCM} = 5 \times 5 \times 6 = 150$$

f.

2	40	2	50	2	60
2	20	5	25	2	30
2	10	5	5	3	15
5	5		1	5	5
	1				1

$$40 = 2 \times 2 \times 2 \times 5$$

$$50 = 2 \times 5 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$\text{LCM} = 2 \times 5 \times 5 \times 2 \times 2 \times 3 = 600$$

g.

2	14	2	42	3	63
7	7	3	21	3	21
	1	7	7	7	7
			1		1

$$14 = 2 \times 7$$

$$42 = 2 \times 3 \times 7$$

$$63 = 3 \times 3 \times 7$$

$$\text{LCM} = 7 \times 3 \times 2 \times 3 = 126$$

h.

2	48	2	80	2	112
2	24	2	40	2	56
2	12	2	20	2	28
2	6	2	10	2	14
3	3	5	5	7	7
	1		1		1

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$112 = 2 \times 2 \times 2 \times 2 \times 7$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 7 = 1680$$

i.

2	360	2	60	2	120
2	180	2	30	2	60
2	90	3	15	2	30
3	45	5	5	3	15
3	15		1	5	5
5	5				1
	1				

$$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 360$$

3. a.

2	24, 60, 80
2	12, 30, 40
2	6, 15, 20
3	3, 15, 10
5	1, 5, 10
2	1, 1, 2
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 5 \\ &= 240\end{aligned}$$

b.

2	25, 40, 60
2	25, 20, 30
2	25, 10, 15
3	25, 5, 15
5	25, 5, 5
5	5, 1, 1
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 3 \times 5 \times 5 \\ &= 600\end{aligned}$$

c.

2	80, 100, 120
2	40, 50, 60
2	20, 25, 30
2	10, 25, 15
3	5, 25, 15
5	5, 25, 5
5	1, 5, 1
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \\ &= 1200\end{aligned}$$

d.

2	30, 150, 300
2	15, 75, 150
3	15, 75, 75
5	5, 25, 25
5	1, 5, 5
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 3 \times 5 \times 5 \\ &= 300\end{aligned}$$

e.

2	36, 48, 96
2	18, 24, 48
2	9, 12, 24
2	9, 6, 12
3	9, 3, 6
2	3, 1, 2
3	3, 1, 1
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 2 \times 3 \\ &= 288\end{aligned}$$

f.

2	15, 30, 120
2	15, 15, 60
2	15, 15, 30
3	15, 15, 15
5	5, 5, 5
	1, 1, 1

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 3 \times 5 \\ &= 120\end{aligned}$$

g.

2	60, 70, 80, 100
2	30, 35, 40, 50
2	15, 35, 20, 25
2	15, 35, 10, 25
3	15, 35, 5, 25
5	5, 35, 5, 25
5	1, 7, 1, 5
7	1, 7, 1, 1
	1, 1, 1, 1

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 \\ \times 5 \times 7 = 8400$$

h.

2	70, 140, 210, 240
2	35, 70, 105, 120
2	35, 35, 105, 60
2	35, 35, 105, 30
3	35, 35, 105, 15
5	35, 35, 35, 5
7	7, 7, 7, 1
	1, 1, 1, 1

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 7 \\ = 1680$$

i.

2	125, 150, 175, 300
2	125, 75, 175, 150
3	125, 75, 175, 75
5	125, 25, 175, 25
5	25, 5, 35, 5
5	5, 1, 7, 1
7	1, 1, 7, 1
	1, 1, 1, 1

$$\text{LCM} = 2 \times 2 \times 3 \times 5 \times 5 \times 5 \times 7 = 10500$$

4. The required least number is (LCM of 18, 24, 48, 108) – 4
So, first we will find the LCM of 18, 24, 48 and 108.

2	18, 24, 48, 108
2	9, 12, 24, 54
2	9, 6, 12, 27
2	9, 3, 6, 27
3	9, 3, 3, 27
3	3, 1, 1, 9
3	1, 1, 1, 3
	1, 1, 1, 1

$$\text{So, LCM} = 2 \times 2 \times 2 \times 2 \times 3 \\ \times 3 \times 3 = 432$$

Hence, the required number is $(432 - 4) = 428$

5. Required time = LCM of 15, 18 and 45

$$15 = 3 \times 5$$

$$18 = 2 \times 3 \times 3$$

$$45 = 3 \times 3 \times 5$$

$$\begin{aligned}\text{So, LCM} &= 2 \times 3 \times 3 \times 5 = 90 \text{ min} \\ &= 1 \text{ hr } 30 \text{ min}\end{aligned}$$

Hence, bell ring will again at $9:45 + 1 \text{ hr } 30 \text{ min} = 11:15 \text{ a.m.}$

6. LCM of 4, 8, 12, 20

$$4 = 2 \times 2$$

$$8 = 2 \times 2 \times 2$$

$$12 = 2 \times 2 \times 3$$

$$20 = 2 \times 2 \times 5$$

$$\text{So, LCM} = 2 \times 2 \times 2 \times 3 \times 5 = 120$$

So, required numbers are $10000 - 40$ and $10000 + (120 - 40)$
i.e. 9960 and 10080.

$$\begin{array}{r} 83 \\ 120 \overline{) 10000} \\ \underline{-960} \downarrow \\ 400 \\ \underline{-360} \\ 40 \end{array}$$

SDG

7. Required minimum distance = LCM of 48, 60 and 72

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$\begin{aligned}\text{So, LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \\ &= 720\end{aligned}$$

Mental Maths

1. 5. 2. even 3. odd 4. finite 5. 26
6. 144 7. 60 8. product of numbers.

MCQs

1. (a) 2. (a) 3. (d) 4. (b) 5. (d)

CHAPTER-5 : FRACTIONS

Assessment Time 5.1

1. a. $\frac{3}{8}$ b. $\frac{2}{6}$ c. $\frac{4}{8}$ d. $\frac{13}{48}$ e. $\frac{5}{10}$ f. $\frac{1}{3}$
2. Do yourself

3. a. $\frac{4}{7}$

Numerator = 4

Denominator = 7

b. $\frac{9}{13}$

Numerator = 9

Denominator = 13

c. $\frac{13}{25}$

Numerator = 13

Denominator = 25

d. $\frac{59}{63}$

Numerator = 59

Denominator = 63

4. a. Numerator = $5 + 4 = 9$

Denominator $5 - 3 = 2$

Fraction = $\frac{\text{Numerator}}{\text{Denominator}} = \frac{9}{2}$

b. Numerator = $2 \times 3 = 6$

Denominator = $3 \times 4 = 12$

Fraction = $\frac{\text{Numerator}}{\text{Denominator}} = \frac{6}{12} = \frac{1}{2}$

5. a. $\frac{1}{3}$ of 18 = $\frac{1}{3} \times 18 = \frac{18}{3} = 6$

b. $\frac{1}{5}$ of 35 = $\frac{1}{5} \times 35 = \frac{35}{5} = 7$

c. $\frac{2}{5}$ of 45 = $\frac{2}{5} \times 45 = \frac{2 \times 45}{5} = \frac{90}{5} = 18$

Assessment Time 5.2

1. a. $\frac{3}{8} = \frac{3 \times 2}{8 \times 2} = \frac{3 \times 3}{8 \times 3} = \frac{3 \times 4}{8 \times 4} = \frac{3 \times 5}{8 \times 5} = \frac{3 \times 6}{8 \times 6}$
 $= \frac{6}{16} = \frac{9}{24} = \frac{12}{32} = \frac{15}{40} = \frac{18}{48}$

b. $\frac{7}{10} = \frac{7 \times 2}{10 \times 2} = \frac{7 \times 3}{10 \times 3} = \frac{7 \times 4}{10 \times 4} = \frac{7 \times 5}{10 \times 5} = \frac{7 \times 6}{10 \times 6}$
 $= \frac{14}{20} = \frac{21}{30} = \frac{28}{40} = \frac{35}{50} = \frac{42}{60}$

c. $\frac{11}{17} = \frac{11 \times 2}{17 \times 2} = \frac{11 \times 3}{17 \times 3} = \frac{11 \times 4}{17 \times 4} = \frac{11 \times 5}{17 \times 5} = \frac{11 \times 6}{17 \times 6}$
 $= \frac{22}{34} = \frac{33}{51} = \frac{44}{68} = \frac{55}{85} = \frac{66}{102}$

$$\begin{aligned} \text{d. } \frac{21}{25} &= \frac{21 \times 2}{25 \times 2} = \frac{21 \times 3}{25 \times 3} = \frac{21 \times 4}{25 \times 4} = \frac{21 \times 5}{25 \times 5} = \frac{21 \times 6}{25 \times 6} \\ &= \frac{42}{50} = \frac{63}{75} = \frac{84}{100} = \frac{105}{125} = \frac{126}{150} \end{aligned}$$

$$\begin{aligned} \text{e. } \frac{22}{30} &= \frac{22 \times 2}{30 \times 2} = \frac{22 \times 3}{30 \times 3} = \frac{22 \times 4}{30 \times 4} = \frac{22 \times 5}{30 \times 5} = \frac{22 \times 6}{30 \times 6} \\ &= \frac{44}{60} = \frac{66}{90} = \frac{88}{120} = \frac{110}{150} = \frac{132}{180} \end{aligned}$$

2. a. We need numerator 28, So required number with to be multiplied by 7 to make it 28 is 4 ($28 \div 7 = 4$)

$$\text{Now, } \frac{7}{15} = \frac{7}{15} \times \frac{4}{4} = \frac{28}{60}$$

- b. We need denominator 90. So, required number which is to be multiplied by 15 to make it 90 is 6 ($90 \div 15 = 6$)

$$\text{Now, } \frac{7}{15} = \frac{7}{15} \times \frac{6}{6} = \frac{42}{90}$$

3. a. We need numerator 10, So, required number which is to be divided by 30 to make it 10 is 3 ($30 \div 10 = 3$).

$$\text{Now, } \frac{30}{45} = \frac{30 \div 3}{45 \div 3} = \frac{10}{15}$$

- b. We need denominator 3. So, required number which is to be divided by 45 to make it 3 is 15 ($45 \div 15 = 3$)

$$\text{Now, } \frac{30}{45} = \frac{30 \div 15}{45 \div 15} = \frac{2}{3}$$

4. a. $\frac{5}{8} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{30}{48}$

On cross multiplication, we get

$$5 \times 48 = 240 \quad \text{and} \quad 8 \times 30 = 240$$

$$\text{Since } 5 \times 48 = 8 \times 30$$

Hence, $\frac{5}{8}$ and $\frac{30}{48}$ are equivalent.

b. $\frac{7}{16} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{21}{32}$

On cross multiplication, we get

$$32 \times 7 = 224 \quad \text{and} \quad 16 \times 21 = 336$$

$$\text{Since } 32 \times 7 \neq 16 \times 21$$

Hence, $\frac{7}{16}$ and $\frac{21}{32}$ are not equivalent.

c. $\frac{7}{8} \begin{array}{c} \nearrow \nwarrow \\ \nwarrow \nearrow \end{array} \frac{18}{40}$

On cross multiplication, we get

$$40 \times 7 = 280 \quad \text{and} \quad 18 \times 8 = 144$$

$$\text{Since } 40 \times 7 \neq 18 \times 8$$

Hence, $\frac{7}{8}$ and $\frac{18}{40}$ are not equivalent.

5. a. $\frac{18}{40} = \frac{x}{120}$ On cross multiplication, we get

$$18 \times 120 = x \times 40$$

$$\therefore x = \frac{18 \times 120}{40} = 18 \times 3 = 54$$

$$\text{Hence, } \frac{18}{40} = \frac{54}{120}$$

b. $\frac{12}{16} = \frac{6}{x}$ On cross multiplication, we get

$$12 \times x = 16 \times 6$$

$$\therefore x = \frac{16 \times 6}{12} = 8$$

$$\text{Hence, } \frac{12}{16} = \frac{6}{8}$$

c. $\frac{x}{4} = \frac{25}{20}$ On cross multiplication, we get

$$x \times 20 = 4 \times 25$$

$$\therefore x = \frac{4 \times 25}{20} = 5$$

$$\text{Hence, } \frac{5}{4} = \frac{25}{20}$$

d. $\frac{7}{11} = \frac{x}{44}$ On cross multiplication, we get

$$7 \times 44 = 11 \times x$$

$$\therefore x = \frac{7 \times 44}{11} = 28$$

$$\text{Hence, } \frac{7}{11} = \frac{28}{44}$$

6. a. $\frac{12}{45}$, HCF of 12 and 45 is 3

$$\text{So, } \frac{12}{45} = \frac{12 \div 3}{45 \div 3} = \frac{4}{15}$$

b. $\frac{65}{169}$, HCF of 65 and 169 is 13

$$\text{So, } \frac{65}{169} = \frac{65 \div 13}{169 \div 13} = \frac{5}{13}$$

c. $\frac{150}{375}$, HCF of 150 and 375 is 75

$$\text{So, } \frac{150}{375} = \frac{150 \div 75}{375 \div 75} = \frac{2}{5}$$

d. $\frac{30}{42}$, HCF of 30 and 42 is 6

$$\text{So, } \frac{30}{42} = \frac{30 \div 6}{42 \div 6} = \frac{5}{7}$$

Assessment Time 5.3

1. a. $\frac{6}{13}, \frac{7}{13}, \frac{8}{13}, \frac{9}{13}$

b. $\frac{8}{17}, \frac{9}{17}, \frac{10}{17}, \frac{11}{17}$

2. Fractions having same denominator are like fraction. So, the like fraction.

a. $\frac{9}{19}, \frac{8}{19}, \frac{7}{19}, \frac{3}{19}$

b. $\frac{5}{18}, \frac{7}{18}, \frac{10}{18}, \frac{9}{18}$

3. When numerator of a fraction is less than its denominator, then it is a proper fraction.

a. $\frac{7}{8}$

d. $\frac{9}{11}$

When numerator is equal to or more than denominator, Improper fraction — (b) (c)

4. a.
$$\begin{array}{r} 8 \overline{) 15} (1 \\ \underline{-8} \\ 7 \end{array}$$

Quotient = 1

Remainder = 7

$$\text{So, } \frac{15}{8} = 1 \frac{7}{8}$$

b.
$$\begin{array}{r} 3 \overline{) 23} (7 \\ \underline{-21} \\ 2 \end{array}$$

Quotient = 7

Remainder = 2

$$\text{So, } \frac{23}{3} = 7 \frac{2}{3}$$

c.
$$\begin{array}{r} 8 \overline{) 125} (15 \\ \underline{-8} \\ 45 \\ \underline{-40} \\ 5 \end{array}$$

d.
$$\begin{array}{r} 10 \overline{) 218} (21 \\ \underline{-20} \\ 18 \\ \underline{-10} \\ 8 \end{array}$$

$$\text{Quotient} = 15$$

$$\text{Remainder} = 5$$

$$\text{So, } \frac{125}{8} = 15 \frac{5}{8}$$

$$\text{Quotient} = 21$$

$$\text{Remainder} = 7$$

$$\text{So, } \frac{218}{10} = 21 \frac{8}{10}$$

$$5. \text{ Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{numerator}}{\text{Denominator}}$$

$$a. \quad 4 \frac{2}{5} = \frac{5 \times 4 + 2}{5} = \frac{20 + 2}{5} = \frac{22}{5}$$

$$b. \quad 2 \frac{5}{7} = \frac{7 \times 2 + 5}{7} = \frac{14 + 5}{7} = \frac{19}{7}$$

$$c. \quad 4 \frac{3}{8} = \frac{8 \times 4 + 3}{8} = \frac{32 + 3}{8} = \frac{35}{8}$$

$$d. \quad 5 \frac{2}{9} = \frac{9 \times 5 + 2}{9} = \frac{45 + 2}{9} = \frac{47}{9}$$

$$6. \quad a. \text{ Reciprocal of } \frac{4}{7} \text{ is } \frac{7}{4}$$

$$b. \text{ Reciprocal of } \frac{8}{17} \text{ is } \frac{17}{8}$$

$$c. \text{ Reciprocal of } 6 \frac{3}{4} \text{ or } \frac{27}{4} \text{ is } \frac{4}{27}$$

$$d. \text{ Reciprocal of } 7 \frac{3}{10} \text{ or } \frac{73}{10} \text{ is } \frac{10}{73}$$

$$7. \quad a. \quad 1 \quad b. \text{ like} \quad c. \text{ equal}$$

$$d. \text{ Improper fraction, natural number}$$

Assessment Time 5.4

$$1. \quad a. \quad \frac{11}{18} > \frac{7}{18} \quad b. \quad \frac{8}{13} > \frac{5}{13} \quad c. \quad \frac{12}{30} < \frac{17}{30}$$

$$d. \quad \frac{2}{15} \text{ and } \frac{2}{18} \quad \text{LCM of 15 and 18 is 90.}$$

$$\frac{2}{15} \times \frac{6}{6} = \frac{12}{90} \quad \text{and} \quad \frac{2}{18} \times \frac{5}{5} = \frac{10}{90}$$

$$\text{Hence, } \frac{2}{15} > \frac{2}{18}$$

$$e. \quad \frac{3}{19} \text{ and } \frac{3}{17} \quad \text{LCM of 19 and 17 is 323.}$$

$$\frac{3}{19} \times \frac{17}{17} = \frac{51}{323} \quad \text{and} \quad \frac{3}{17} \times \frac{19}{19} = \frac{57}{323}$$

Hence, $\frac{51}{323} < \frac{57}{323}$ (Since, $51 < 57$)

Hence, $\frac{3}{19} < \frac{3}{17}$

2. a. $\frac{4}{13} < \frac{12}{13}$

Since, $4 < 12$ and fraction are like fractions.

b. $\frac{17}{33} > \frac{12}{33}$

Since, $17 > 12$ and fraction are like fractions.

c. $\frac{15}{19} > \frac{4}{19}$

Since, $15 > 4$ and fraction are like fractions.

d. $\frac{6}{20}$ and $\frac{6}{28}$

Since, numerator are same. So, we compare their denominator. Since, $20 < 28$, So, $\frac{6}{20} > \frac{6}{28}$

e. $\frac{4}{13}$ and $\frac{4}{17}$

Since, numerator are same. So, we compare their denominator. Since, $13 < 17$, So, $\frac{4}{13} > \frac{4}{17}$

f. In $\frac{5}{19}$ and $\frac{5}{12}$

Since, numerator are same. So, we compare their denominator. Since, $19 > 12$, So, $\frac{5}{19} < \frac{5}{12}$

3. a. Since $3 < 4 < 6 < 8 < 18$ and all fractions are like fraction.

Here, ascending order of given fraction is

$$\frac{3}{15}, \frac{4}{15}, \frac{6}{15}, \frac{8}{15}, \frac{18}{15}$$

b. Since $2 < 5 < 6 < 7 < 9$ and all fractions are like fraction.

Here, ascending order of given fraction is

$$\frac{2}{17}, \frac{5}{17}, \frac{6}{17}, \frac{7}{17}, \frac{9}{17}$$

c. Since, numerators are same. So, we compare their denominators.

Since $5 < 12 < 13 < 16 < 23$.

Hence, the ascending order of given fractions

$$\frac{1}{23}, \frac{1}{16}, \frac{1}{13}, \frac{1}{12}, \frac{1}{5}$$

4. a. Since $13 > 8 > 6 > 5 > 3$ and all fraction are like fractions.

Here, descending order of given fractions is

$$\frac{13}{23}, \frac{8}{23}, \frac{6}{23}, \frac{5}{23}, \frac{3}{23}$$

- b. Since $11 > 9 > 5 > 3 > 1$ and all fraction are like fractions.

Here, descending order of given fractions is

$$\frac{11}{13}, \frac{9}{13}, \frac{5}{13}, \frac{3}{13}, \frac{1}{13}$$

- c. Since, numerator are same. So, we compare their denominator.

Since, $11 < 13 < 15 < 16 < 18$

Here, the descending order of the given number is

$$\frac{2}{11}, \frac{2}{13}, \frac{2}{15}, \frac{2}{16}, \frac{2}{18}$$

Assessment Time 5.5

1. a. $\frac{6}{17} + \frac{7}{17} = \frac{6+7}{17} = \frac{13}{17}$

b. $\frac{9}{23} + \frac{5}{23} = \frac{9+5}{23} = \frac{14}{23}$

c. $\frac{15}{41} + \frac{12}{41} = \frac{15+12}{41} = \frac{27}{41}$

d. $\frac{3}{8} + \frac{1}{16} + \frac{5}{32}$

$$\text{LCM of } 8, 16 \text{ and } 32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$= 32$$

$$= \frac{4 \times 3 + 1 \times 2 + 1 \times 5}{32}$$

$$= \frac{12 + 2 + 5}{32} = \frac{19}{32}$$

e. $\frac{3}{14} + \frac{5}{4} + \frac{17}{28}$

$$\text{LCM of } 14, 4 \text{ and } 28 = 2 \times 2 \times 7$$

2	8, 16, 32
2	4, 8, 16
2	2, 4, 8
2	1, 2, 4
	1, 1, 2

2	14, 4, 28
2	7, 2, 14
7	7, 1, 7
	1, 1, 1

$$= 28$$

$$= \frac{2 \times 3 + 5 \times 7 + 1 \times 17}{28}$$

$$= \frac{6 + 35 + 17}{28} = \frac{58}{28} = \frac{29}{14}$$

f. $\frac{2}{5} + \frac{7}{10} + \frac{9}{25}$

$$\text{LCM of 5, 10 and 25} = 5 \times 2 \times 5$$

$$= 50$$

$$= \frac{2 \times 10 + 7 \times 5 + 2 \times 9}{50}$$

$$= \frac{20 + 35 + 18}{50} = \frac{73}{50}$$

$$\begin{array}{c|c} 5 & 5, 10, 25 \\ \hline & 1, 2, 5 \end{array}$$

2. a. $3\frac{1}{3} + 2\frac{3}{15} = \frac{3 \times 3 + 1}{3} + \frac{15 \times 2 + 3}{15}$

$$\text{LCM of 3 and 15} = 3 \times 5 = 15$$

$$\frac{10}{3} + \frac{33}{15} = \frac{10 \times 5 + 1 \times 33}{15}$$

$$= \frac{50 + 33}{15} = \frac{83}{15} = 5\frac{8}{15}$$

$$\begin{array}{c|c} 3 & 3, 15 \\ \hline & 1, 5 \end{array}$$

b. $3\frac{2}{7} + 3\frac{1}{14} = \frac{23}{7} + \frac{43}{14}$

$$\text{LCM of 7 and 14} = 7 \times 2 = 14$$

$$= \frac{2 \times 23 + 1 \times 43}{14}$$

$$= \frac{46 + 43}{14} = \frac{89}{14} = 6\frac{5}{14}$$

$$\begin{array}{c|c} 7 & 7, 14 \\ \hline & 1, 2 \end{array}$$

c. $5\frac{1}{4} + 2\frac{3}{10} = \frac{21}{4} + \frac{23}{10}$

$$\text{LCM of 4 and 10} = 2 \times 2 \times 5 = 20$$

$$= \frac{5 \times 21 + 2 \times 23}{20}$$

$$= \frac{105 + 46}{20} = \frac{151}{20} = 7\frac{11}{20}$$

$$\begin{array}{c|c} 2 & 4, 10 \\ \hline & 2, 5 \end{array}$$

d. $1\frac{3}{4} + 2\frac{1}{5} + \frac{1}{12} = \frac{7}{4} + \frac{11}{5} + \frac{1}{12}$

$$\begin{array}{c|c} 2 & 4, 5, 12 \\ 2 & 2, 5, 6 \\ \hline & 1, 5, 3 \end{array}$$

$$\text{LCM of 4, 5 and 12} = 2 \times 2 \times 5 \times 3 = 60$$

$$= \frac{15 \times 7 + 12 \times 11 + 1 \times 5}{60}$$

$$= \frac{105 + 132 + 5}{60} = \frac{242}{60}$$

$$= \frac{121}{30} = 4\frac{1}{30}$$

$$\text{e. } 7\frac{1}{9} + 2\frac{1}{3} + 3\frac{1}{18} = \frac{64}{9} + \frac{7}{3} + \frac{55}{18}$$

$$\text{LCM of 9, 3 and 18} = 3 \times 3 \times 2 = 18$$

$$= \frac{2 \times 64 + 7 \times 6 + 1 \times 55}{18}$$

$$= \frac{128 + 42 + 55}{18} = \frac{225}{18}$$

$$= \frac{25}{2} = 12\frac{1}{2}$$

$$\begin{array}{r|l} 3 & 9, 3, 18 \\ \hline 3 & 3, 1, 6 \\ \hline & 1, 1, 2 \end{array}$$

$$\text{f. } 5\frac{5}{6} + 6\frac{7}{12} + 2\frac{1}{9} = \frac{35}{6} + \frac{79}{12} + \frac{19}{9}$$

$$\text{LCM of 6, 12 and 9} = 2 \times 3 \times 2 \times 3 = 36$$

$$= \frac{6 \times 35 + 3 \times 79 + 4 \times 19}{36}$$

$$= \frac{210 + 237 + 76}{36} = \frac{523}{36} = 14\frac{19}{36}$$

$$\begin{array}{r|l} 2 & 6, 12, 9 \\ \hline 3 & 3, 6, 9 \\ \hline & 1, 2, 3 \end{array}$$

$$3. \text{ a. } \frac{3}{8} - \frac{1}{8} = \frac{3-1}{8} = \frac{2}{8} = \frac{1}{4}$$

$$\text{b. } \frac{19}{27} - \frac{13}{27} = \frac{19-13}{27} = \frac{6}{27} = \frac{2}{9}$$

$$\text{c. } \frac{5}{9} - \frac{2}{9} = \frac{5-2}{9} = \frac{3}{9} = \frac{1}{3}$$

$$\text{d. } 2 - \frac{3}{7} = \frac{2 \times 7 - 3 \times 1}{7} = \frac{14-3}{7} = \frac{11}{7}$$

$$\text{e. } \frac{9}{10} - \frac{2}{5} = \frac{1 \times 9 - 2 \times 2}{10} = \frac{9-4}{10} = \frac{5}{10} = \frac{1}{2}$$

$$\begin{aligned} \text{f. } \frac{3}{5} - \frac{8}{17} &= \frac{17 \times 3 - 8 \times 5}{85} \\ &= \frac{51 - 40}{85} = \frac{11}{85} \end{aligned}$$

$$4. \text{ a. } 4\frac{2}{3} - 2\frac{3}{7} = \frac{14}{3} - \frac{17}{7}$$

$$= \frac{7 \times 14 - 3 \times 17}{21} = \frac{98 - 51}{21}$$

$$= \frac{47}{21} = 2\frac{5}{21}$$

$$\text{b. } 7\frac{9}{11} - 3\frac{1}{22} = \frac{86}{11} - \frac{67}{22}$$

$$= \frac{2 \times 86 - 1 \times 67}{22} = \frac{172 - 67}{22}$$

$$= \frac{105}{22} = 4\frac{17}{22}$$

$$\text{c. } 2 - 1\frac{3}{4} = \frac{2}{1} - \frac{7}{4}$$

$$= \frac{4 \times 2 - 1 \times 7}{4} = \frac{8 - 7}{4} = \frac{1}{4}$$

$$\text{d. } 6\frac{1}{2} - 3\frac{1}{4} = \frac{13}{2} - \frac{13}{4}$$

$$= \frac{2 \times 13 - 1 \times 13}{4} = \frac{26 - 12}{4} = \frac{13}{4} = 3\frac{1}{4}$$

$$\text{e. } 3\frac{1}{4} - 1\frac{1}{8} = \frac{13}{4} - \frac{9}{8}$$

$$= \frac{2 \times 13 - 1 \times 9}{8} = \frac{26 - 9}{8}$$

$$= \frac{17}{8} = 2\frac{1}{8}$$

$$\text{f. } 4\frac{3}{4} - 1\frac{1}{5} = \frac{19}{4} - \frac{6}{5}$$

$$= \frac{5 \times 19 - 4 \times 6}{20} = \frac{95 - 24}{20}$$

$$= \frac{71}{20} = 3\frac{11}{20}$$

$$5. \text{ a. } \frac{5}{13} + \frac{2}{39} - \frac{7}{26}$$

$$\text{LCM of } 13, 39 \text{ and } 26 = 13 \times 3 \times 2 = 78$$

$$= \frac{6 \times 5 + 2 \times 2 - 3 \times 7}{78} = \frac{30 + 4 - 21}{78}$$

$$\begin{array}{l|l} 13 & 13, 39, 26 \\ \hline & 1, 3, 2 \end{array}$$

$$= \frac{34 - 21}{78} = \frac{13}{78} = \frac{1}{6}$$

b. $\frac{5}{18} + \frac{7}{36} - \frac{4}{12}$

$$\text{LCM of 18, 36 and 12} = 2 \times 2 \times 3 \times 3 = 36$$

$$= \frac{2 \times 5 + 1 \times 7 - 3 \times 4}{36} = \frac{10 + 7 - 12}{36}$$

$$= \frac{17 - 12}{36} = \frac{5}{36}$$

2	18, 36, 12
2	9, 18, 6
3	9, 9, 3
3	3, 3, 1
	1, 1, 1

c. $2\frac{1}{10} - 3\frac{3}{10} + 4\frac{3}{10} = \frac{21}{10} - \frac{33}{10} + \frac{43}{10}$

$$= \frac{21 - 33 + 43}{10} = \frac{64 - 33}{10}$$

$$= \frac{31}{10} = 3\frac{1}{10}$$

d. $1\frac{3}{8} - 2\frac{1}{4} + 3\frac{5}{6} = \frac{11}{8} - \frac{9}{4} + \frac{23}{6}$

$$\text{LCM of 8, 4 and 6} = 2 \times 2 \times 2 \times 3 = 24$$

$$= \frac{11 \times 3 - 6 \times 9 + 4 \times 23}{24} = \frac{33 - 54 + 92}{24}$$

$$= \frac{33 + 38}{24} = \frac{71}{24} = 2\frac{23}{24}$$

2	8, 4, 6
2	4, 2, 3
	2, 1, 3

e. $7\frac{1}{6} - 3\frac{1}{2} + 3\frac{2}{3} = \frac{43}{6} - \frac{7}{2} + \frac{5}{3}$

$$\text{LCM of 6, 2 and 3} = 6$$

$$= \frac{43 \times 1 - 3 \times 7 + 2 \times 5}{6} = \frac{43 - 21 + 10}{6}$$

$$= \frac{53 - 21}{6} = \frac{32}{6} = \frac{16}{3} = 5\frac{1}{3}$$

f. $5\frac{2}{3} - 3\frac{5}{12} - 2\frac{1}{6} = \frac{17}{3} - \frac{41}{12} - \frac{13}{6}$

$$\text{LCM of 3, 12 and 6} = 2 \times 3 \times 2 = 12$$

$$= \frac{4 \times 17 - 1 \times 41 - 2 \times 13}{12} = \frac{68 - 41 - 26}{12}$$

$$= \frac{68 - 67}{12} = \frac{1}{12}$$

2	3, 12, 6
3	3, 6, 3
	1, 2, 1

Assessment Time 5.6

$$1. \quad a. \quad \frac{1}{9} \times \frac{3}{10} \times \frac{15}{27} = \frac{1 \times \cancel{3}^1 \times \cancel{15}^3}{\cancel{9}^3 \times \cancel{10}^2 \times \cancel{27}^6} = \frac{1}{54}$$

$$b. \quad \frac{3}{4} \times \frac{2}{14} \times \frac{28}{18} = \frac{\cancel{3} \times \cancel{2}^1 \times \cancel{28}^3}{\cancel{4}^2 \times \cancel{14} \times \cancel{18}^6} = \frac{1}{6}$$

$$c. \quad \frac{6}{7} \times \frac{3}{4} \times \frac{14}{18} = \frac{\cancel{6} \times \cancel{3}^1 \times \cancel{14}^3}{\cancel{7} \times \cancel{4}^2 \times \cancel{18}^3} = \frac{1}{2}$$

$$d. \quad 6\frac{1}{5} \times \frac{9}{32} = \frac{31}{5} \times \frac{9}{32} = 1\frac{19}{160}$$

$$e. \quad 4\frac{2}{5} \times \frac{15}{22} = \frac{21}{5} \times \frac{15}{22} = 3$$

$$f. \quad 6\frac{1}{7} \times 5\frac{3}{5} = \frac{43}{7} \times \frac{28}{5} = 34\frac{2}{5}$$

$$2. \quad a. \quad \frac{9}{15} \div \frac{12}{35} = \frac{9}{15} \times \frac{35}{12} = \frac{315}{180} = \frac{7}{4} = 1\frac{3}{4}$$

$$b. \quad \frac{15}{16} \div \frac{20}{32} = \frac{15}{16} \times \frac{32}{20} = 1\frac{1}{2}$$

$$c. \quad \frac{8}{7} \div \frac{24}{42} = \frac{8}{7} \times \frac{42}{24} = \frac{8 \times 42}{7 \times 24} = 2$$

$$d. \quad 5\frac{2}{7} \div 1\frac{1}{21} = \frac{37}{7} \div \frac{22}{21} \\ = \frac{37}{7} \times \frac{21}{22} = \frac{111}{22}$$

$$e. \quad 3\frac{1}{5} \div \frac{8}{15} = \frac{16}{5} \times \frac{15}{8} \\ = \frac{16 \times 15}{5 \times 8} = 3 \times 2 = 6$$

$$f. \quad 5\frac{2}{5} \div 2\frac{7}{10} = \frac{27}{5} \div \frac{27}{10} \\ = \frac{27}{5} \times \frac{10}{27} = 2$$

Assessment Time 5.7

1. Weight of potatoes = $4\frac{1}{4}$ kg = $\frac{17}{4}$ kg

Weight of cabbage = $2\frac{1}{5}$ kg = $\frac{11}{5}$ kg

Weight of tomatoes = $1\frac{1}{10}$ kg = $\frac{11}{10}$ kg

$$\begin{aligned} \text{Total weight of vegetables} &= \frac{17}{4} + \frac{11}{5} + \frac{11}{10} \\ &= \frac{5 \times 17 + 4 \times 11 + 2 \times 11}{20} \\ &= \frac{85 + 44 + 22}{20} \\ &= \frac{151}{20} = 7\frac{11}{20} \end{aligned}$$

2	4, 5, 10
5	2, 5, 5
	2, 1, 1

LCM = $2 \times 5 \times 2 = 20$

Hence, the total weight of the vegetables is $7\frac{11}{20}$ kg.

2. Weight of sugar = $20\frac{1}{4}$ = $\frac{81}{4}$ kg

Weight of rice = $12\frac{1}{5}$ = $\frac{61}{5}$ kg

$$\begin{aligned} \text{Total weight of both items} &= \frac{81}{4} + \frac{61}{5} \text{ kg} \\ &= \frac{5 \times 81 + 4 \times 61}{20} \text{ kg} \\ &= \frac{405 + 244}{20} \text{ kg} \\ &= \frac{649}{20} \text{ kg} = 32\frac{9}{20} \text{ kg} \end{aligned}$$

Hence, the total weight of both items $32\frac{9}{20}$ kg.

3. Total money Samarth have = ₹ 300

Cost of a pencil box = ₹ $90\frac{1}{5}$ = ₹ $\frac{451}{5}$

Money left with him = ₹ $(300 - \frac{451}{5})$

$$\begin{aligned}
 &= ₹ \frac{300 \times 5 - 451 \times 1}{5} \\
 &= ₹ \frac{1500 - 451}{5} = ₹ \frac{1049}{5} \\
 &= ₹ 209\frac{4}{5}
 \end{aligned}$$

Hence, ₹ $209\frac{4}{5}$ is left with him.

4. Total money Monu has = ₹ 2500

$$\begin{aligned}
 \text{He spends money on book} &= \frac{1}{5} \text{ of ₹ 2500} \\
 &= \frac{1}{5} \times 2500 = ₹ 500
 \end{aligned}$$

$$\begin{aligned}
 \text{Money left with him} &= ₹ (2500 - 500) \\
 &= ₹ 2000
 \end{aligned}$$

Hence, ₹ 2000 is left with him.

5. Sugar divided to distribute among 15 persons = $80\frac{1}{4} = \frac{321}{4}$ kg

$$\begin{aligned}
 \text{Each person get sugar} &= \frac{321}{4} \div 15 \\
 &= \frac{321}{4} \times \frac{1}{15} = \frac{107}{20} \\
 &= 5\frac{7}{20} \text{ kg}
 \end{aligned}$$

6. Mukesh painted = $\frac{1}{4}$

$$\text{Heena painted} = \frac{2}{6}$$

$$\text{Total} = \frac{1}{4} + \frac{2}{6} = \frac{3 \times 1 + 2 \times 2}{12} = \frac{7}{12}$$

$$\text{Remaining part} = 1 - \frac{7}{12} = \frac{12 - 7}{12} = \frac{5}{12}$$

$$\text{Part of design} = \frac{1}{2} \times \frac{5}{12} = \frac{5}{24}$$

$$\begin{aligned}
 \text{Not painted wall} &= 1 - \left(\frac{7}{12} + \frac{5}{24} \right) \\
 &= 1 - \left(\frac{14 + 5}{24} \right)
 \end{aligned}$$

$$= 1 - \frac{19}{24} = \frac{5}{24}$$

Subject Link

Fraction of food eaten not available the next level $= 1 - \frac{1}{10}$

$$= \frac{9}{10}$$

SEL

Total dry fruits = 5 kg

Each box has $= \frac{1}{6}$ kg

So, number of boxes $= 5 \div \frac{1}{6}$

$$= 5 \times 6 = 30$$

SDG

Saved CNG = 33000 tonnes

Saved diesel = 3300 tonnes

Saved petrol = 21000 tonnes

a. Diesel to petrol $= \frac{3300}{21000} = \frac{11}{70}$

$$= 11 : 70$$

b. Diesel to CNG $= \frac{3300}{33000} = \frac{1}{10}$

$$= 1 : 10$$

Mental Maths

- | | | |
|----------------|-------------------|------|
| 1. Denominator | 2. six-thirteenth | 3. 7 |
| 4. 1 | 6. like fractions | |

MCQs

- | | | | | |
|--------|--------|--------|--------|--------|
| 1. (b) | 2. (a) | 3. (c) | 4. (b) | 5. (a) |
|--------|--------|--------|--------|--------|

CHAPTER-6 : DECIMALS

Assessment Time 6.1

1. a. 80.546 b. 53.73
c. 0.839 d. 865.03
2. a. $\frac{3}{10} = 0.3$ b. $\frac{84}{10} = 8.4$
c. $\frac{37}{100} = 0.37$ d. $\frac{87}{100} = 0.87$
e. $\frac{79}{1000} = 0.079$ f. $\frac{986}{1000} = 0.986$
g. $\frac{591}{100} = 5.91$ h. $\frac{763}{10000} = 0.0763$
i. $\frac{976}{1000} = 0.976$
3. a.

S.No.	Decimals	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
a.	89.312		8	9	.	3	1	2
b.	79.028		7	9	.	0	2	8
c.	264.216	2	6	4	.	2	1	6
d.	147.609	1	4	7	.	6	0	9
e.	97.087		9	7	.	0	8	7
f.	608.872	6	0	8	.	8	7	2
g.	67.408		6	7	.	4	0	8
h.	782.097	7	8	2	.	0	9	7

Number Name:

- a. 89.312: Eighty-nine point three one two
- b. 79.028: Seventy-nine point zero two eight
- c. 264.216: Two hundred sixty-four point two one six
- d. 147.609: One hundred forty-seven point six zero nine
- e. 97.087: Ninety-seven point zero eight seven
- f. 608.872: Six hundred eight point eight seven two

g. 67.408: Sixty-seven point four zero eight

h. 782.097: Seven hundred eighty-two point zero nine seven

$$4. \quad a. \quad 47.319 = 4 \times 10 + 7 \times 1 + 3 \times \frac{1}{10} + 1 \times \frac{1}{100} + 9 \times \frac{1}{1000}$$

$$= 40 + 7 + \frac{3}{10} + \frac{1}{100} + \frac{9}{1000}$$

$$b. \quad 87.729 = 8 \times 10 + 7 \times 1 + 7 \times \frac{1}{10} + 2 \times \frac{1}{100} + 9 \times \frac{1}{1000}$$

$$= 80 + 7 + \frac{7}{10} + \frac{2}{100} + \frac{9}{1000}$$

$$c. \quad 137.027 = 1 \times 100 + 3 \times 10 + 7 \times 1 + 0 \times \frac{1}{10} + 2 \times \frac{1}{100} + 7 \times \frac{1}{1000}$$

$$= 100 + 30 + 7 + \frac{2}{100} + \frac{7}{1000}$$

$$d. \quad 406.239 = 4 \times 100 + 0 \times 10 + 6 \times 1 + 2 \times \frac{1}{10} + 3 \times \frac{1}{100} + 9 \times \frac{1}{1000}$$

$$= 400 + 6 + \frac{2}{10} + \frac{3}{100} + \frac{9}{1000}$$

$$e. \quad 545.465 = 5 \times 100 + 4 \times 10 + 5 \times 1 + 4 \times \frac{1}{10} + 6 \times \frac{1}{100} + 5 \times \frac{1}{1000}$$

$$= 500 + 40 + 5 + \frac{4}{10} + \frac{6}{100} + \frac{5}{1000}$$

$$f. \quad 77.067 = 7 \times 10 + 7 \times 1 + 0 \times \frac{1}{10} + 6 \times \frac{1}{100} + 7 \times \frac{1}{1000}$$

$$= 70 + 7 + \frac{6}{100} + \frac{7}{1000}$$

$$g. \quad 98.943 = 9 \times 10 + 8 \times 1 + 9 \times \frac{1}{10} + 4 \times \frac{1}{100} + 3 \times \frac{1}{1000}$$

$$= 90 + 8 + \frac{9}{10} + \frac{4}{100} + \frac{3}{1000}$$

$$h. \quad 232.854 = 2 \times 100 + 3 \times 10 + 2 \times 1 + 8 \times \frac{1}{10} + 5 \times \frac{1}{100} + 4 \times \frac{1}{1000}$$

$$= 200 + 30 + 2 + \frac{8}{10} + \frac{5}{100} + \frac{4}{1000}$$

5. a. $70 + 5 + \frac{6}{10} = 75.6$
- b. $70 + 7 + \frac{7}{10} + \frac{7}{100} = 77.77$
- c. $800 + 60 + 6 + \frac{5}{10} + \frac{8}{100} = 866.58$
- d. $800 + 40 + 7 + \frac{6}{10} + \frac{5}{100} + \frac{9}{1000} = 847.659$

Assessment Time 6.2

1. a. 0.83 and 0.72
 $8 > 7$
 $0.83 > 0.72$
- b. 3.32 and 4.64
 $3 < 4$
 $3.32 < 4.64$
- c. 70.08 and 70.70
 $70 = 70$
 $0 < 7$
 $70.08 < 70.70$
- d. 0.813 and 0.819
 $0 = 0$
 $8 = 8$
 $1 = 1$
 $3 < 9$
 $0.813 < 0.819$
2. a. First we compare the whole number part of given decimal, we get
 $6.38 < 7.93 < 17.29 < 28.46$
 So, the ascending order of given decimals is
 $6.38, 7.93, 17.29$ and 28.46
- b. First we compare the whole number part of given decimal, we get
 $4.019 < 4.519 < 14.376 < 24.634$
 So, the ascending order of given decimals is
 $4.019, 4.519, 14.376$ and 24.634
- c. First we compare the whole number part of given decimal, we get
 $19.428 < 63.169 < 63.248 < 97.376$

So, the ascending order of given decimals is

19.428, 63.169, 63.248 and 97.376

- d. First we compare the whole number part of given decimal, we get

$$18.376 < 37.146 < 47.285 < 51.634$$

So, the ascending order of given decimals is

18.376, 37.146, 47.285 and 51.634

3. a. First we will compare the following decimals

$$20.79 > 20.196 > 10.36 > 10.09$$

So, the descending order of given decimals is

20.79, 20.196, 10.36 and 10.09

- b. First we will compare the following decimals

$$22.894 > 21.89 > 13.796 > 12.37$$

So, the descending order of given decimals is

22.894, 21.89, 13.796 and 12.37

- c. First we will compare the following decimals

$$27.936 > 27.819 > 27.532 > 27.418$$

So, the descending order of given decimals is

27.936, 27.819, 27.532 and 27.418

- d. First we will compare the following decimals

$$0.0937 > 0.0796 > 0.0662 > 0.0230$$

So, the descending order of given decimals is

0.0937, 0.0796, 0.0662 and 0.0230

4. a. $0.09 = \frac{9}{100}$

b. $0.265 = \frac{265}{1000} = \frac{53}{200}$

c. $4.28 = \frac{428}{100} = \frac{107}{25}$

d. $63.476 = \frac{63476}{1000} = \frac{15869}{250}$

e. $0.759 = \frac{759}{1000}$

f. $5.750 = \frac{5750}{1000} = \frac{23}{4}$

g. $44.875 = \frac{44875}{1000} = \frac{359}{8}$

h. $5.0075 = \frac{50075}{10000} = \frac{1003}{400}$

5. a. $\frac{27}{10} = 2.7$

b. $\frac{33}{10} = 3.3$

c. $\frac{42}{10} = 4.2$

d. $\frac{37}{100} = 0.37$

e. $\frac{212}{100} = 2.12$

f. $\frac{341}{1000} = 0.341$

g. $\frac{347}{10000} = 0.0347$

h. $\frac{727}{10000} = 0.0727$

6. Denominators of given fraction are not in the multiple of 10, 100, So, first we will convert denominator of given fraction into multiple of 10, 100

a. $\frac{24}{5} \times \frac{2}{2} = \frac{48}{10} = 4.8$

b. $\frac{25}{4} \times \frac{25}{25} = \frac{625}{100} = 6.25$

c. $\frac{147}{250} \times \frac{4}{4} = \frac{588}{1000} = 0.588$

d. $\frac{216}{125} \times \frac{8}{8} = \frac{1728}{1000} = 1.728$

Assessment Time 6.3

1. On converting given decimals into like decimals, we get

a. 0.82, 4.156, 19.125

$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 0.820 \\ 4.156 \\ 19.125 \\ \hline 24.101 \end{array}$$

b. 5.195, 28.062, 5.713

$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 05.195 \\ 28.062 \\ + 5.713 \\ \hline 38.970 \end{array}$$

c. 2.15, 13.286, 9.345

$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 2.150 \\ 13.286 \\ + 9.345 \\ \hline 24.781 \end{array}$$

d. 54.162, 28.685, 29.632

$$\begin{array}{r} \textcircled{2} \textcircled{1} \textcircled{1} \\ 54.162 \\ 28.685 \\ + 29.632 \\ \hline 112.479 \end{array}$$

e. 13.876, 2.75, 12.564

f. 45.874, 34.89, 21.743

$$\begin{array}{r} \textcircled{2} \textcircled{1} \textcircled{1} \\ 13.876 \\ 2.750 \\ + 12.564 \\ \hline 29.190 \end{array}$$

g. 8.097, 4.9086, 13.953

$$\begin{array}{r} \textcircled{1} \textcircled{1} \textcircled{1} \\ 8.0790 \\ 4.9086 \\ + 13.9530 \\ \hline 26.9586 \end{array}$$

2. a. 6.23 - 4.23

$$\begin{array}{r} 6.23 \\ - 4.23 \\ \hline 2.00 \end{array}$$

c. 292.001 - 25.063

$$\begin{array}{r} \textcircled{8} \textcircled{11} \textcircled{9} \textcircled{9} \textcircled{11} \\ 292.001 \\ - 25.063 \\ \hline 299.938 \end{array}$$

e. 65.797 - 32.987

$$\begin{array}{r} \textcircled{4} \textcircled{17} \\ 65.797 \\ - 32.987 \\ \hline 32.810 \end{array}$$

g. 549.765 - 232.7654

$$\begin{array}{r} \textcircled{8} \textcircled{16} \textcircled{15} \textcircled{14} \textcircled{10} \\ 549.7650 \\ - 232.7654 \\ \hline 316.9996 \end{array}$$

$$\begin{array}{r} \textcircled{1} \textcircled{2} \textcircled{2} \\ 45.874 \\ 34.890 \\ + 21.743 \\ \hline 102.507 \end{array}$$

h. 38.765, 15.674, 72.964

$$\begin{array}{r} \textcircled{1} \textcircled{2} \textcircled{2} \textcircled{1} \\ 38.765 \\ 15.674 \\ + 72.964 \\ \hline 127.403 \end{array}$$

b. 85.963 - 61.238

$$\begin{array}{r} \textcircled{5} \textcircled{13} \\ 85.963 \\ - 61.238 \\ \hline 24.725 \end{array}$$

d. 230.000 - 119.832

$$\begin{array}{r} \textcircled{2} \textcircled{9} \textcircled{9} \textcircled{9} \textcircled{10} \\ 230.000 \\ - 119.832 \\ \hline 110.168 \end{array}$$

f. 190 - 165.875

$$\begin{array}{r} \textcircled{8} \textcircled{9} \textcircled{9} \textcircled{9} \textcircled{10} \\ 190.000 \\ - 165.875 \\ \hline 24.125 \end{array}$$

h. 187.987 - 169.7698

$$\begin{array}{r} \textcircled{7} \textcircled{17} \textcircled{7} \textcircled{16} \textcircled{10} \\ 187.9870 \\ - 169.7698 \\ \hline 18.2172 \end{array}$$

3. a. Positive Decimals

$$\begin{array}{r} \textcircled{7} \textcircled{17} \textcircled{7} \textcircled{16} \textcircled{10} \\ 58.9130 \end{array}$$

Now we subtract

$$\textcircled{1} \textcircled{12}$$

Hence, the simplified answer is 64.9143

b. Positive Decimals

$$\begin{array}{r} 53.632 \\ + 60.303 \\ \hline + 113.935 \\ \hline \end{array}$$

Negative Decimals

$$\begin{array}{r} \textcircled{1} \quad \textcircled{1} \\ 12.638 \\ + 48.004 \\ \hline 60.642 \end{array}$$

Now, we subtract 60.642 from 113.935

$$\begin{array}{r} \textcircled{11} \quad \textcircled{8} \textcircled{13} \\ 113.935 \\ - 60.642 \\ \hline 53.293 \end{array}$$

Hence, the simplified answer is 53.293.

c. Negative Decimals

$$\begin{array}{r} \textcircled{1} \\ 16.1320 \\ 30.0322 \\ + 15.2300 \\ \hline 61.3942 \end{array}$$

Now subtract

$$\begin{array}{r} \textcircled{7} \quad \textcircled{9} \textcircled{9} \textcircled{9} \textcircled{10} \\ 288.0000 \\ - 61.3942 \\ \hline 226.6058 \end{array}$$

d. Positive Decimals

$$\begin{array}{r} 60.006 \\ + 37.783 \\ \hline 97.789 \end{array}$$

Negative Decimals

$$\begin{array}{r} \textcircled{1} \quad \textcircled{1} \\ 25.632 \\ + 15.182 \\ \hline 40.814 \end{array}$$

Now, we subtract 40.814 from 97.789

$$\begin{array}{r} \textcircled{6} \quad \textcircled{17} \\ 97.789 \\ - 40.814 \\ \hline 56.975 \end{array}$$

4. Meena spent money for Maths books = ₹ 197.85

Meena spent money for Science book = ₹ 219.36

Total amount spent on books = ₹ (197.85 + 219.36)

$$\begin{array}{r} \textcircled{1}\textcircled{1}\textcircled{1}\textcircled{1} \\ 197.85 \\ + 219.36 \\ \hline 417.21 \end{array}$$

Hence, the total money spent on Maths and Science books is ₹ 417.21

5. Meena need cloth for shirt = 2.35 m 2.35

Meena need cloth for pant = 1.33 m + 1.33

Total cloth she need in all = 2.35 m + 1.33 m 3.68
= 3.68 m

Hence, Meena need 3.68 m cloth in all.

6. Mahesh travelled in first two hours = 152 km 385 m

Mahesh travelled in next two hours = 171 km 680 m

Total distance travelled by Mahesh in these 4 hours = 152 km 385 m + 171 km 680 m

	km			m		
	1		1	1		
	1	5	2	3	8	5
+	1	7	1	6	8	0
	3	2	4	0	6	5

Hence, total distance travelled by Mahesh in these 4 hours in 324 km 65 m

7. Weight of a box = 43.265 g 43.265

Weight of a suitcase = 24.200 g + 24.200

Total weight of both items = 43.265 g + 24.200 g 67.465
= 67.465 g

Hence, the total weight of both items is 67.465 g

8. Total money Lekha had = ₹ 25000

Cost of shoes she purchased = ₹ 1350.95

Cost of bag she purchased = ₹ 569.38

Cost of two jeans she purchased = ₹ 4450.85

Total cost of all items she purchased = ₹ (1350.95 + 569.38 + 4450.85)

$$= ₹ 6374.18$$

$$\begin{array}{r} \textcircled{1}\textcircled{1}\textcircled{1}\textcircled{2}\textcircled{1} \\ 1350.95 \\ 569.38 \\ + 4450.85 \\ \hline 6371.18 \end{array}$$

Money left with her = Total money – cost of all items she purchased

$$= ₹ (25000 - 6371.18)$$

$$= ₹ 18628.82$$

Hence, ₹ 18628.82 is the total money left with her.

$$\begin{array}{r} \textcircled{1}\textcircled{14}\textcircled{9}\textcircled{9}\textcircled{9}\textcircled{10} \\ 25000.00 \\ - 6371.18 \\ \hline 18628.82 \end{array}$$

Subject Link—Social Science

Literacy of males = 94.20%

Literacy of females = 87.86

Difference = (94.20 – 87.86) %

$$= 6.34\%$$

Subject Line—Science

1. Milk provides least energy

2. Total energy = 3.2 + 5.3 + 3.7 + 3.0 = 15.2

$$\begin{aligned} \text{Required fraction} &= \frac{3}{15.2} = \frac{30}{152} \\ &= \frac{15}{76} \end{aligned}$$

Mental Maths

1. 0.81 and 0.82

2. 0.024

3. greater

4. smaller

5. 4.039

MCQs (Multiple Choice questions)

1. (c)

2. (a)

3. (b)

4. (b)

5. (b)

6. (b)

7. (a)

8. (b)

9. (a)

10. (b)

11. (d)

CHAPTER 7: INTRODUCTION TO RATIO, PROPORTION AND PERCENTAGE

Assessment Time 7.1

1. a. $3.5 \text{ to } 6.0 = \frac{3.5}{6.0} = \frac{35}{60} = \frac{7}{12} = 7 : 12$
- b. $300 \text{ g to } 800 \text{ g} = \frac{300}{800} = \frac{3}{8} = 3 : 8$
- c. $6 \text{ kg to } 350 \text{ g}$
Since $1 \text{ kg} = 1000 \text{ g}$
 $\therefore 6 \text{ kg} = 6 \times 1000 = 6000 \text{ g}$
So, $6000 \text{ g to } 350 \text{ g} = \frac{6000}{350} = \frac{120}{7} = 120 : 7$
- d. $55 \text{ paise to } ₹ 4$
 $₹ 4 = 400 \text{ paise}$
So, $55 \text{ paise} : 400 \text{ paise} = \frac{55}{400} = \frac{11}{80} = 11 : 80$
- e. $500 \text{ mL to } 8 \text{ L}$
Since $1 \text{ L} = 1000 \text{ mL}$
 $8 \text{ L} = 8000 \text{ mL}$
So, $500 \text{ mL} : 8000 \text{ mL} = \frac{500}{8000} = \frac{1}{16} = 1 : 16$
- f. $20 \text{ minute to } 3 \text{ hours}$
Since $1 \text{ hr} = 60 \text{ minutes}$
 $3 \text{ hrs} = 180 \text{ minutes}$
So, $20 \text{ mins} : 180 \text{ min} = \frac{20}{180} = \frac{1}{9} = 1 : 9$
- g. $6 \text{ months to } 3 \text{ years}$
Since $1 \text{ year} = 12 \text{ months}$
 $3 \text{ years} = 36 \text{ months}$
So, $6 \text{ months} : 36 \text{ months} = \frac{6}{36} = \frac{1}{6} = 1 : 6$
- h. $30 \text{ cm to } 5 \text{ m}$
Since $1 \text{ m} = 100 \text{ cm}$
 $5 \text{ m} = 5 \times 100 = 500 \text{ cm}$
So, $30 \text{ cm} : 500 \text{ cm} = \frac{30}{500} = \frac{3}{50} = 3 : 50$

- i. 400 m to 6 km

Since 1 km = 1000 m

6 km = 6000 m

$$\text{So, } 400 \text{ m} : 6000 \text{ m} = \frac{400}{6000} = \frac{1}{15} = 1 : 15$$

2. Ratio = 13 : 8

Sum of ratio = 13 + 8 = 21

$$\text{So, first number} = \frac{13}{21} \times 105 = 65 \text{ cm}$$

$$\text{second number} = \frac{8}{21} \times 105 = 40 \text{ cm}$$

3. Sum of three number = 4917

$$\text{Ratio of number} = \frac{10}{3} : \frac{21}{5} : \frac{49}{8}$$

LCM of 3, 5, 8 is 120

$$\therefore \frac{10}{3} \times 120 : \frac{21}{5} \times 120 : \frac{49}{8} \times 120$$

$$= 400 : 504 : 735$$

$$\text{Sum of ratio} = 400 + 504 + 735 = 1639$$

$$\text{So, first number} = \frac{400}{1639} \times 4917 = 1200$$

$$\text{Second number} = \frac{504}{1639} \times 4917 = 1512$$

$$\text{Third number} = \frac{735}{1639} \times 4917 = 2205$$

4. Ratio of aluminium and copper = 3 : 8

Total weight of alloy = 7.7 kg

$$\text{Sum of ratio} = 3 + 8 = 11$$

$$\therefore \text{Weight of aluminium} = \frac{3}{11} \times 7.7 = 2.1 \text{ kg}$$

$$\text{Weight of copper} = \frac{8}{11} \times 7.7 = 5.6 \text{ kg}$$

5. Ratio of sides of triangle = 2 : 2 : 4

$$\text{Sum of ratio} = 2 + 2 + 4 = 8$$

$$\text{Perimeter of triangle} = 40 \text{ cm}$$

$$\therefore \text{First Side} = \frac{2}{8} \times 40 = 10 \text{ cm}$$

$$\Rightarrow \text{Second Side} = \frac{2}{8} \times 40 = 10 \text{ cm}$$

$$\Rightarrow \text{Third Side} = \frac{4}{8} \times 40 = 20 \text{ cm}$$

6. Ratio of length and breadth = 5 : 4

Let length of park be x .

Breadth of park = 80 cm

$$\text{So, } 5 : 4 = x : 80$$

$$\Rightarrow \frac{5}{4} = \frac{x}{80}$$

$$\Rightarrow x = \frac{80 \times 5}{4} = 100 \text{ m}$$

Hence, length of park is 100 m

7. Total number of students = 5320

Number of girls = 3300

Number of boys = $5320 - 3300 = 2020$

$$\begin{aligned} \text{a. Ratio of boys to total number of students} &= \frac{2020}{5320} \\ &= 101 : 266 \end{aligned}$$

$$\text{b. Number of girls to total students} = \frac{3300}{5320} = 165 : 266$$

8. **First goldsmith**

Ratio of gold and copper = 5 : 3

$$\text{So, fraction of gold} = \frac{5}{8}$$

Second goldsmith

Ratio of gold and copper = 6 : 4

$$\text{So, fraction of gold} = \frac{6}{10} = \frac{3}{5}$$

Now, $\frac{5}{8}$ and $\frac{3}{5}$

On cross multiplication,

$$5 \times 5 = 25 \quad \text{and} \quad 3 \times 8 = 24$$

Since, $5 \times 5 > 3 \times 8$

$$\text{So, } \frac{5}{8} > \frac{3}{5}$$

Here, quality of first goldsmith is better.

9. a. T b. F c. F d. T

Critical Thinking Skill

1. Ratio of age of Shivani and Aanchal = $18 : 12 = 3 : 2$

$$\text{Total money} = ₹ 650$$

$$\text{Sum of ratio} = 3 + 2 = 5$$

$$\text{Shivani received} = \frac{3}{5} \times 650 = ₹ 390$$

$$\text{Aanchal received} = \frac{2}{5} \times 650 = ₹ 260$$

2. Let Neha gets = ₹ x

$$\text{Hemant gets} = ₹ 5x$$

$$\text{Naman gets} = ₹ 15x$$

$$\text{Ratio of Naman, Hemant and Neha is} = 15 : 5 : 1$$

$$\text{Total money} = ₹ 1260$$

$$\text{Sum of ratio} = 15 + 5 + 1 = 21$$

$$\text{So, Naman gets} = \frac{15}{21} \times 1260 = ₹ 900$$

$$\text{Hemant gets} = \frac{5}{21} \times 1260 = ₹ 300$$

$$\text{Neha gets} = \frac{1}{21} \times 1260 = ₹ 60$$

Assessment Time 7.2

1. a. 12, 20, 25, 30

$$\text{First term} = 12$$

$$\text{Second term} = 20$$

$$\text{Third term} = 25$$

$$\text{Fourth term} = 30$$

$$\text{Product of extremes} = 12 \times 30 = 360$$

$$\text{Product of means} = 20 \times 25 = 500$$

Since, product of extremes $\neq$ product of means

Hence, given numbers are not in proportion.

- b. Product of extremes = $18 \times 16 = 288$

$$\text{Product of means} = 32 \times 4 = 128$$

Since, product of extremes $\neq$ product of means

Hence, given numbers are not in proportion.

- c. 36, 24, 37, 18

$$\text{Product of extremes} = 36 \times 18 = 648$$

$$\text{Product of means} = 24 \times 27 = 648$$

Since, product of extremes = product of means

Hence, given numbers are in proportion.

d. $\text{Product of extremes} = 45 \times 20 = 900$

$$\text{Product of means} = 50 \times 18 = 900$$

Since, product of extremes = product of means

Hence, given numbers are in proportion.

2. a. 27, x, 45, 60

Since product of extremes = product of means

$$\Rightarrow 27 \times 60 = x \times 45$$

$$\Rightarrow x = \frac{27 \times 60}{45} = 36$$

b. 16, 24, 6, x

$$\therefore 16 \times x = 24 \times 6$$

$$\Rightarrow x = \frac{24 \times 6}{16} = 9$$

c. 9, 12, x, 16

$$\therefore 9 \times 16 = 12 \times x$$

$$\Rightarrow x = \frac{9 \times 16}{12} = 12$$

d. x, 40, 30, 25

$$\therefore x \times 25 = 40 \times 30$$

$$\Rightarrow x = \frac{40 \times 30}{25} = 48$$

3. Let in come be ₹ x

So, $13 : 5 = x : 1800$

$$\Rightarrow \frac{13}{5} = \frac{x}{1800}$$

$$\Rightarrow x = \frac{13 \times 1800}{5} = ₹ 4680$$

4. Let weight of zinc be x kg.

$$\therefore 8 : 7 = x : 12.5$$

$$\Rightarrow \frac{8}{7} = \frac{x}{12.5}$$

$$\Rightarrow 7 \times x = 8 \times 12.5$$

$$\Rightarrow x = \frac{8 \times 12.5}{7} = 14.285 \text{ kg}$$

5. Let width of field be x m.

$$7 : 5 = 280 : x$$

$$\Rightarrow \frac{7}{5} = \frac{280}{x}$$

$$\Rightarrow 7 \times x = 280 \times 5$$

$$\Rightarrow x = \frac{280 \times 5}{7} = 200 \text{ m}$$

6. a. extremes

b. $5 : x = 15 : 30$

$$\Rightarrow 5 \times 30 = x \times 15$$

$$\Rightarrow x = \frac{5 \times 30}{15} = 10$$

c. $35 : 70 = 25 : x$

$$\Rightarrow \frac{35}{70} = \frac{25}{x}$$

$$\Rightarrow 35 \times x = 25 \times 70$$

$$\Rightarrow x = \frac{25 \times 70}{35} = 50$$

d. Mean proportion of 16 and 64 $= \sqrt{16 \times 64}$
 $= \sqrt{4^2 \times 8^2} = 32$

SDG

Let income be ₹ x .

$$\therefore 20 : 9 = x : 6400$$

$$\Rightarrow \frac{20}{9} = \frac{x}{6400}$$

$$\Rightarrow x = \frac{20 \times 6400}{9} = ₹ 14222.22$$

He donates = ₹ 2000

$$\text{Left money} = 14222.22 - 2000 = ₹ 12,222.22$$

Critical Thinking Skills

1. Let expenditure be ₹ x .

$$\therefore 15 : 12 = 50625 : x$$

$$\Rightarrow \frac{15}{12} = \frac{50625}{x}$$

$$\Rightarrow 15 \times x = 50625 \times 12$$

$$\Rightarrow x = \frac{50625 \times 12}{15} = ₹ 40500$$

So, savings = ₹ (50625 - 40500) = ₹ 10,125

2. Let actual distance be x km.

$$\therefore 1 : 5 = 16 : x$$

$$\Rightarrow \frac{1}{5} = \frac{16}{x}$$

$$\Rightarrow x = 5 \times 16 = 80 \text{ km}$$

Assessment Time 7.3

1. a. $\frac{1}{5} = \frac{1}{5} \times 100 = 20\%$ b. $\frac{7}{8} = \frac{7}{8} \times 100 = 87.5\%$

c. $\frac{16}{45} = \frac{16}{45} \times 100 = 35.55\%$ d. $\frac{43}{50} = \frac{43}{50} \times 100 = 86\%$

2. a. $3 : 5 = \frac{3}{5} \times 100 = 60\%$

b. $7 : 12 = \frac{7}{12} \times 100 = 58.33\%$

c. $20 : 25 = \frac{20}{25} \times 100 = 80\%$

d. $17 : 50 = \frac{17}{50} \times 100 = 34\%$

3. a. $0.05 = 0.05 \times 100 = 5\%$ b. $1.6 = 1.6 \times 100 = 160\%$

c. $3.2 = 3.2 \times 100 = 320\%$ d. $4.25 = 4.25 \times 100 = 425\%$

4. a. $24\% = \frac{24}{100} = \frac{6}{25}$ b. $75\% = \frac{75}{100} = \frac{3}{4}$

c. $125\% = \frac{125}{100} = \frac{5}{4}$ d. $180\% = \frac{180}{100} = \frac{9}{5}$

5. a. $5\% = \frac{5}{100} = 0.05$ b. $37\% = \frac{37}{100} = 0.37$

c. $68\% = \frac{68}{100} = 0.68$ d. $128\% = \frac{128}{100} = 1.28$

6. a. $5\% \text{ of } 150 = \frac{5}{100} \times 150 = 7.5$

b. $12\% \text{ of } 350 = \frac{12}{100} \times 350 = 42$

c. $9\% \text{ of } 10 \text{ L} = \frac{9}{100} \times 10 = 0.9 \text{ L}$

$$d. \quad 38\% \text{ of } 800 \text{ kg} = \frac{38}{100} \times 800 = 304 \text{ kg}$$

$$7. \quad a. \quad 18\% \text{ of } x = 1440$$

$$\frac{18}{100} \times x = 1440$$

$$x = \frac{1440 \times 100}{18}$$

$$= ₹ 8000$$

$$b. \quad 28\% \text{ of } x = 56$$

$$\frac{28}{100} \times x = 56$$

$$x = \frac{56 \times 100}{28} = 200$$

$$c. \quad 60\% \text{ of } x = 84$$

$$\frac{60}{100} \times x = 84$$

$$x = \frac{84 \times 100}{60} = 140 \text{ kg}$$

Assessment Time 7.4

$$1. \quad \text{Number of males} = 38\%$$

$$\text{Number of females} = 36\%$$

$$\text{So, number of children} = 100 - (38 + 36)$$

$$= 100 - 74 = 26\%$$

$$2. \quad \text{Monthly income} = ₹ 85,000$$

$$\text{Priyanka spends} = 75\% \text{ of } 85,000$$

$$= \frac{75}{100} \times 85,000 = ₹ 63,750$$

$$\text{So, her saving} = ₹ (85,000 - 63,750) = 21,250$$

$$3. \quad \text{Monthly saving of Ravi} = ₹ 9000$$

$$\text{Ravi saves} = 18\% \text{ of income}$$

$$\text{Let Ravi's income be } ₹ x$$

$$18\% \text{ of } x = 9000$$

$$\Rightarrow \frac{18}{100} \times x = 9000$$

$$\Rightarrow x = \frac{9000 \times 100}{18}$$

$$\Rightarrow x = ₹ 50,000$$

$$4. \quad \text{Number of girls} = 640$$

$$\text{Percentage of girls} = 40\%$$

$$\text{Let total strength of school be } x.$$

$$40\% \text{ of } x = 640$$

$$\Rightarrow \frac{40}{100} \times x = 640$$

$$\Rightarrow x = \frac{640 \times 100}{40} = 1600$$

5. Total eggs = 480

$$\text{Rotten eggs} = 20\%$$

$$\text{Broken eggs} = 10\%$$

$$\begin{aligned}\text{Remaining percentage} &= 100 - (20 + 10) \\ &= 70\%\end{aligned}$$

$$\begin{aligned}\text{So, remaining eggs} &= 70\% \text{ of } 480 \\ &= \frac{70}{100} \times 480 = 336\end{aligned}$$

6. Passing marks = 295 + 55 = 350

$$\text{Passing percentage} = 35\%$$

Let maximum marks be x

$$\text{So, } 35\% \text{ of } x = 350$$

$$\frac{35}{100} \times x = 350$$

$$x = \frac{350 \times 100}{35} = 1000$$

7. Nitre in gunpowder = 40%

$$\text{Sulphur in gunpowder} = 25\%$$

$$\begin{aligned}\text{Carbon in gunpowder} &= 100 - (40 + 25) \\ &= 35\%\end{aligned}$$

$$\text{Total quantity of gunpowder} = 60 \text{ kg}$$

$$\text{Quantity of nitre} = 40\% \text{ of } 60$$

$$= \frac{40}{100} \times 60 = 24 \text{ kg}$$

$$\text{Quantity of sulphur} = 25\% \text{ of } 60$$

$$= \frac{25}{100} \times 60 = 15 \text{ kg}$$

$$\text{Quantity of carbon} = 35\% \text{ of } 60$$

$$= \frac{35}{100} \times 60 = 21 \text{ kg}$$

$$8. \text{ Percentage of Sunita} = \frac{820}{900} \times 100 = 91.1\%$$

$$\text{Percentage of Sonia} = \frac{920}{1000} \times 100 = 92\%$$

Hence, Sonia's performance is better.

$$9. \text{ Ratio of angles of triangle} = 3 : 2 : 4$$

$$\text{Sum of ratio} = 3 + 2 + 4 = 9$$

$$\text{Sum of angles of a triangle} = 180^\circ$$

$$\text{So, first angle} = \frac{3}{9} \times 180 = 60^\circ$$

$$\text{Second angle} = \frac{2}{9} \times 180 = 40^\circ$$

$$\text{Third angle} = \frac{4}{9} \times 180 = 80^\circ$$

$$\text{Percentage of first angle} = \frac{3}{9} \times 100 = 33.33\%$$

$$\text{Percentage of second angle} = \frac{2}{9} \times 100 = 22.22\%$$

$$\text{Percentage of third angle} = \frac{4}{9} \times 100 = 44.44\%$$

SEL

$$\text{Share of wife} = 40\%$$

$$\text{Share of son} = 15\%$$

$$\text{Share of daughter} = 15\%$$

$$\text{Share of old age home} = 100 - (40 + 15 + 15)$$

$$= 100 - 70 = 30\%$$

$$\text{Let total money} = ₹ x$$

$$\therefore 30\% \text{ of } x = 300000$$

$$\Rightarrow \frac{30}{100} \times x = 300000$$

$$\Rightarrow x = \frac{300000 \times 100}{30} = ₹ 10,00,000$$

Critical Thinking Skills

$$\text{Total money} = ₹ 2,00,000$$

$$\text{Ratio of Rahul, Adesh and Atul} = 4 : 3 : 3$$

$$\text{Sum of ratio} = 4 + 3 + 3 = 10$$

So, Rahul will get = $\frac{4}{10} \times 200000 = ₹ 80,000$

and Adesh will get = $\frac{3}{10} \times 200000 = ₹ 60,000$

Atul will get = $\frac{3}{10} \times 200000 = ₹ 60,000$

Mental Maths

1. $65 : 135 = \frac{65}{135} = \frac{13}{27} = 13 : 27$

2. Antecedent

3. 300 mL to 3L

Since 1 L = 1000 mL

3 L = 3000 mL

Now, $300 : 3000 = \frac{300}{3000} = \frac{1}{10} = 1 : 10$

4. 80 paise to ₹ 7

Since ₹ 7 = 700 paise

Now, $80 : 700 = \frac{80}{700} = \frac{8}{70} = \frac{4}{35} = 4 : 35$

5. $16 : 8 = x : 2$

$$\frac{16}{8} = \frac{x}{2}$$

$$\Rightarrow x = \frac{16 \times 2}{8} = 4$$

MCQs

1. (b)

2. (a)

3. (d)

4. c. $15 : 17 :: x : 51$

$$\frac{15}{17} = \frac{x}{51}$$

$$\Rightarrow x = \frac{15 \times 51}{17} = 45$$

5. a. Let fourth terms be x

$$\therefore 4 : 8 = 9 : x$$

$$\Rightarrow \frac{4}{8} = \frac{9}{x}$$

$$\Rightarrow x = \frac{9 \times 8}{4} = 18$$

- a. kilometre (km)
 - b. metre (m)
 - c. centimetre (cm), millimetre (mm)
 - d. 15000
- a. Since, $1 \text{ km} = 1000 \text{ m}$
So, $18 \text{ km } 37 \text{ m} = (18 \times 1000 + 37) \text{ m}$
 $= (18000 + 37) \text{ m} = 18037 \text{ m}$
 - b. $9 \text{ km } 317 \text{ m} = (9 \times 1000 + 317) \text{ m}$
 $= (9000 + 317) \text{ m} = 9317 \text{ m}$
 - c. Since $1 \text{ hm} = 100 \text{ m}$
 $38 \text{ hm } 98 \text{ m} = (38 \times 100 + 98) \text{ m}$
 $= (3800 + 98) \text{ m} = 3898 \text{ m}$
 - d. $34 \text{ hm } 37 \text{ m} = (34 \times 100 + 37) \text{ m}$
 $= (3400 + 37) \text{ m} = 3437 \text{ m}$
 - e. Since $1 \text{ dam} = 1000 \text{ cm}$
 $19 \text{ dam } 38 \text{ cm} = (19 \times 1000 + 38) \text{ cm}$
 $= (19000 + 38) \text{ cm} = 19038 \text{ cm}$
 - f. Since $1 \text{ dm} = 100 \text{ mm}$
 $14 \text{ dm } 14 \text{ mm} = (14 \times 100 + 14) \text{ mm}$
 $= (1400 + 14) \text{ mm} = 1414 \text{ mm}$
- a. Since $1 \text{ m} = 100 \text{ cm}$
So, $9 \text{ m } 37 \text{ cm} = (9 \times 100 + 37) \text{ cm}$
 $= (900 + 37) \text{ cm} = 937 \text{ cm}$
 - b. Since $1 \text{ m} = 1000 \text{ mm}$
So, $18 \text{ m } 416 \text{ mm} = (18 \times 1000 + 416) \text{ mm}$
 $= (18000 + 416) \text{ mm} = 18416 \text{ mm}$
 - c. Since $1 \text{ dm} = 100 \text{ mm}$
So, $91 \text{ dm } 32 \text{ mm} = (91 \times 100 + 32) \text{ mm}$
 $= (9100 + 32) \text{ mm} = 9132 \text{ mm}$
 - d. Since $1 \text{ dm} = 10 \text{ cm}$
So, $32 \text{ dm } 4 \text{ cm} = (32 \times 10 + 4) \text{ cm}$
 $= (320 + 4) \text{ cm} = 324 \text{ cm}$

e. Since, 1 cm = 10 mm

$$\begin{aligned}\text{So, } 51 \text{ cm } 9 \text{ mm} &= (51 \times 10 + 9) \\ &= (510 + 9) \text{ mm} = 519 \text{ mm}\end{aligned}$$

f. Since, 1 cm = 10 mm

$$\begin{aligned}\text{So, } 72 \text{ cm } 5 \text{ mm} &= (72 \times 10 + 5) \text{ mm} \\ &= (720 + 5) \text{ mm} = 725 \text{ mm}\end{aligned}$$

4. a. Since, 1 km = 1000 m

$$\begin{aligned}\text{So, } 71634 \text{ m} &= (71000 + 634) \text{ m} \\ &= (71 \times 1000 + 634) \text{ m} \\ &= 71 \text{ km } 634 \text{ m}\end{aligned}$$

b. Since, 1 hm = 100 m

$$\begin{aligned}\text{So, } 3728 \text{ m} &= (3700 + 28) \text{ m} \\ &= (37 \times 100 + 28) \text{ m} = 37 \text{ hm } 28 \text{ m}\end{aligned}$$

c. Since, 1 hm = 100 m

$$\begin{aligned}\text{So, } 4196 \text{ m} &= (4100 + 96) \text{ m} \\ &= (41 \times 100 + 96) \text{ m} = 41 \text{ hm } 96 \text{ m}\end{aligned}$$

d. Since 1 m = 100 cm

$$\begin{aligned}\text{So, } 319 \text{ cm} &= (300 + 19) \text{ cm} \\ &= (3 \times 100 + 19) \text{ cm} = 3 \text{ m } 19 \text{ cm}\end{aligned}$$

e. Since 1 m = 100 cm

$$\begin{aligned}\text{So, } 928 \text{ cm} &= (900 + 28) \text{ cm} \\ &= (9 \times 100 + 28) \text{ cm} = 9 \text{ m } 28 \text{ cm}\end{aligned}$$

f. Since, 1 m = 1000 mm

$$\begin{aligned}\text{So, } 1362 \text{ mm} &= (1000 + 362) \text{ mm} \\ &= (1 \times 1000 + 362) \text{ mm} = 1 \text{ m } 362 \text{ mm}\end{aligned}$$

5. a. Since $1 \text{ m} = \frac{1}{1000} \text{ km}$

$$\text{So, } 28396 \text{ m} = \frac{28396}{1000} \text{ km} = 28.396 \text{ km}$$

b. Since $1 \text{ m} = \frac{1}{1000} \text{ km}$

$$\text{So, } 24632 \text{ m} = \frac{24632}{1000} \text{ km} = 24.632 \text{ km}$$

c. Since $1 \text{ m} = \frac{1}{10} \text{ dam}$

$$\text{So, } 3728 \text{ m} = \frac{3728}{10} \text{ dam} = 372.8 \text{ dam}$$

d. Since $1 \text{ cm} = \frac{1}{100} \text{ m}$

$$\text{So, } 412 \text{ cm} = \frac{412}{100} \text{ m} = 4.12 \text{ m}$$

e. Since, $1 \text{ m} = \frac{1}{100} \text{ dm}$

$$\text{So, } 6329 \text{ m} = \frac{6329}{100} \text{ dm} = 63.29 \text{ dm}$$

f. Since, $1 \text{ mm} = \frac{1}{10} \text{ m}$

$$813 \text{ mm} = \frac{813}{10} \text{ m} = 81.3 \text{ cm}$$

Assessment Time 8.2

1. a.

	km		m	
	1		1	1
	4	8	0	5
+	9	6	1	6
	1	4	4	2

$$\text{So, } 48 \text{ km } 54 \text{ m} + 96 \text{ km } 169 \text{ m} \\ = 144 \text{ km } 223 \text{ m}$$

b.

	km		m	
	1	1	1	
	5	3	8	9
+	7	8	7	4
	1	3	2	6

$$\text{So, } 53 \text{ km } 891 \text{ m} + 78 \text{ km } 745 \text{ m} \\ = 132 \text{ km } 636 \text{ m}$$

c.

	m		cm	
	1	1	1	
	7	9	6	8
+	8	4	7	9
	1	6	4	7

$$\text{So, } 79 \text{ m } 68 \text{ cm} + 84 \text{ m } 79 \text{ cm} \\ = 164 \text{ m } 47 \text{ cm}$$

d.

	m		cm	
	1	1	1	
	1	4	4	7
+	8	6	5	9
	2	3	1	3

$$\text{So, } 144 \text{ m } 75 \text{ cm} + 86 \text{ m } 59 \text{ cm} \\ = 231 \text{ m } 34 \text{ cm}$$

e.

	cm	mm
	1 1	
	3 7	8
+	4 6	4
	8 4	2

So, $37 \text{ cm } 8 \text{ mm} + 46 \text{ cm } 4 \text{ mm}$
 $= 84 \text{ cm } 2 \text{ mm}$

f.

	cm	mm
	1 1	
	2 9	5
+	3 4	6
	6 4	1

So, $29 \text{ cm } 5 \text{ mm} + 34 \text{ cm } 6 \text{ mm}$
 $= 64 \text{ cm } 1 \text{ mm}$

2. a.

	km	m
	5 12 11	
	7 6 3 1 4	
-	4 3 6 8 1	
	3 2 6 3 3	

So, $76 \text{ km } 314 \text{ m} - 43 \text{ km } 681 \text{ m}$
 $= 32 \text{ km } 633 \text{ m}$

b.

	km	m
	0 9 12 10 7 16	
	1 0 3 0 8 6	
-	8 7 3 0 7	
	1 5 7 7 9	

So, $103 \text{ km } 086 \text{ m} - 87 \text{ km } 307 \text{ m}$
 $= 15 \text{ km } 779 \text{ m}$

c.

	m	cm
	4 9 12 14	
	5 0 3 4	
-	2 4 8 6	
	2 5 4 8	

So, $50 \text{ m } 34 \text{ cm} - 24 \text{ m } 86 \text{ cm}$
 $= 25 \text{ m } 48 \text{ cm}$

d.

	m	cm
	0 16 0 13	
	1 6 9 1 3	
-	9 7 0 8	
	7 2 0 5	

So, $169 \text{ m } 13 \text{ cm} - 97 \text{ m } 08 \text{ cm}$
 $= 72 \text{ m } 05 \text{ cm}$

e.

	cm	mm
	2 10	
	3 0	8
-	2 1	6
	0 9	2

So, $30 \text{ cm } 8 \text{ mm} - 21 \text{ cm } 6 \text{ mm}$
 $= 9 \text{ cm } 2 \text{ mm}$

f.

	cm		mm
	0	12	11
	1	3	2
–	6	2	9
	6	9	9

So, $132\text{ cm } 8\text{ mm} - 62\text{ cm } 9\text{ mm}$
 $= 69\text{ cm } 9\text{ mm}$

Assessment Time 8.3

1. a.

	km		m	
		3	1	4
	2	0	2	6
×				5
	1	0	1	3

So, $202\text{ km } 628\text{ m} \times 5$
 $= 1013\text{ km } 140\text{ m}$

b.

	km		m	
	5	1		4
	3	7	2	0
×				7
	2	6	0	4

So, $372\text{ km } 56\text{ m} \times 7$
 $= 2604\text{ km } 392\text{ m}$

c.

	hm		m
	7	2	5
	7	9	3
×			8
	6	3	4

So, $79\text{ hm } 37\text{ m} \times 8$
 $= 634\text{ hm } 96\text{ m}$

d.

	m	cm
	5	5
	5	5
×		9
	5	0

So, $55\text{ m } 63\text{ cm} \times 9$
 $= 500\text{ m } 67\text{ cm}$

e.

	dm	mm
	3	2
	5	5
×		6
	3	3

So, $55\text{ dm } 4\text{ mm} \times 6$
 $= 332\text{ dm } 4\text{ mm}$

f.

	cm	mm
	3 4	
	24	6
×		8
	196	8

$$\begin{aligned}\text{So, } 24 \text{ cm } 6 \text{ mm} \times 8 \\ = 196 \text{ cm } 8 \text{ mm}\end{aligned}$$

2. a. Since
- $1 \text{ km} = 1000 \text{ m}$

$$\begin{aligned}\text{So, } 638 \text{ km } 248 \text{ m} &= (638 \times 1000 + 248) \text{ m} \\ &= (638000 + 248) \text{ m} \\ &= 638248 \text{ m}\end{aligned}$$

$$\begin{aligned}638248 \text{ m} \div 8 &= 79781 \text{ m} \\ &= (79000 + 781) \text{ m} \\ &= 79 \text{ km } 781 \text{ m}\end{aligned}$$

$$\begin{array}{r} 79781 \\ 8 \overline{) 638248} \\ \underline{-56} \downarrow \\ 78 \downarrow \\ \underline{-72} \downarrow \\ 62 \downarrow \\ \underline{-56} \downarrow \\ 64 \downarrow \\ \underline{-64} \downarrow \\ 08 \downarrow \\ \underline{-8} \downarrow \\ 0 \end{array}$$

- b. Since,
- $1 \text{ hm} = 100$

$$\begin{aligned}140 \text{ hm } 56 \text{ m} &= (140 \times 100 + 56) \text{ m} \\ &= (14000 + 56) \text{ m} \\ &= 14056 \text{ m}\end{aligned}$$

$$\begin{aligned}14056 \text{ m} \div 4 &= 3514 \text{ m} \\ &= (3500 + 14) \text{ m} \\ &= 35 \text{ hm } 14 \text{ m}\end{aligned}$$

$$\begin{array}{r} 3514 \\ 4 \overline{) 14056} \\ \underline{-12} \downarrow \\ 20 \downarrow \\ \underline{-20} \downarrow \\ 05 \downarrow \\ \underline{-4} \downarrow \\ 16 \downarrow \\ \underline{-16} \downarrow \\ 0 \end{array}$$

- c.
- $1 \text{ m} = 100 \text{ cm}$

$$\begin{aligned}18 \text{ m } 27 \text{ cm} &= (18 \times 100 + 27) \text{ cm} \\ &= (1800 + 27) \text{ cm} \\ &= 1827 \text{ cm}\end{aligned}$$

$$\begin{aligned}1827 \text{ cm} \div 3 &= 609 \text{ cm} \\ &= (6 \times 100 + 9) \text{ cm} \\ &= 600 + 9 = 609 \\ &= 6 \text{ m } 9 \text{ cm}\end{aligned}$$

$$\begin{array}{r} 609 \\ 3 \overline{) 1827} \\ \underline{-18} \downarrow \\ 027 \downarrow \\ \underline{-27} \downarrow \\ 0 \end{array}$$

d. $1 \text{ m} = 100 \text{ cm}$

$506 \text{ m } 8 \text{ cm} = (506 \times 100 + 8) \text{ cm}$

$= (50600 + 8) \text{ cm}$

$= 50608 \text{ cm}$

$50608 \text{ cm} \div 8 = 6326 \text{ cm}$

$= (63 \times 100 + 26) \text{ cm}$

$= 63 \text{ m } 26 \text{ cm}$

$$\begin{array}{r}
 6326 \\
 8 \overline{) 50608} \\
 \underline{-48} \downarrow \\
 26 \downarrow \\
 \underline{-24} \downarrow \\
 20 \downarrow \\
 \underline{-16} \downarrow \\
 48 \downarrow \\
 \underline{-48} \downarrow \\
 0
 \end{array}$$

e. $1 \text{ cm} = 10 \text{ mm}$

$55 \text{ cm } 8 \text{ mm} = (55 \times 10 + 8) \text{ mm}$

$= (550 + 8) \text{ mm}$

$= 558 \text{ mm}$

$558 \text{ mm} \div 2 = 279 \text{ mm}$

$279 \text{ mm} = (270 + 9) \text{ mm}$

$= (27 \times 10 + 9) \text{ mm} = 27 \text{ cm } 9 \text{ mm}$

$$\begin{array}{r}
 279 \\
 2 \overline{) 558} \\
 \underline{-4} \downarrow \\
 15 \downarrow \\
 \underline{-14} \downarrow \\
 18 \downarrow \\
 \underline{-18} \downarrow \\
 0
 \end{array}$$

f. $1 \text{ cm} = 10 \text{ mm}$

$84 \text{ cm } 8 \text{ mm} = (84 \times 10 + 8) \text{ mm}$

$= (840 + 8) \text{ mm} = 848 \text{ mm}$

$848 \text{ mm} \div 4 = 212 \text{ mm}$

$212 \text{ mm} = (210 + 2) \text{ mm}$

$= (21 \times 10 + 2) \text{ mm} = 21 \text{ cm } 2 \text{ mm}$

$$\begin{array}{r}
 212 \\
 4 \overline{) 848} \\
 \underline{-8} \downarrow \\
 04 \downarrow \\
 \underline{-4} \downarrow \\
 08 \downarrow \\
 \underline{-8} \downarrow \\
 0
 \end{array}$$

Assessment Time 8.4

1. a. gram b. 28000 c. 472000 d. 91038

2. a. $1 \text{ kg} = 1000 \text{ g}$

$54 \text{ kg } 613 \text{ g} = (54 \times 1000 + 613) \text{ g}$

$= (54000 + 613) \text{ g}$

$= 54613 \text{ g}$

b. $1 \text{ kg} = 1000 \text{ g}$

$616 \text{ kg } 378 \text{ g} = (616 \times 1000 + 378) \text{ g}$

$= (616000 + 378) \text{ g}$

$= 616378 \text{ g}$

c. Since $1 \text{ hg} = 100 \text{ g}$

$$\begin{aligned}\text{So, } 81 \text{ hg } 39 \text{ g} &= (81 \times 100 + 39) \text{ g} \\ &= (8100 + 39) \text{ g} = 8139 \text{ g}\end{aligned}$$

d. Since $1 \text{ hg} = 100 \text{ g}$

$$\begin{aligned}\text{So, } 78 \text{ hg } 96 \text{ g} &= (78 \times 100 + 96) \text{ g} \\ &= (7800 + 96) \text{ g} = 7896 \text{ g}\end{aligned}$$

e. Since $1 \text{ dag} = 10 \text{ g}$

$$\begin{aligned}\text{So, } 53 \text{ dag } 8 \text{ g} &= (53 \times 10 + 8) \text{ g} \\ &= (530 + 8) \text{ g} = 538 \text{ g}\end{aligned}$$

f. Since, $1 \text{ dag} = 10 \text{ g}$

$$\begin{aligned}\text{So, } 39 \text{ dag } 5 \text{ g} &= (39 \times 10 + 5) \text{ g} \\ &= (390 + 5) \text{ g} = 395 \text{ g}\end{aligned}$$

3. a. Since, $1 \text{ g} = 1000 \text{ mg}$

$$\begin{aligned}\text{So, } 53 \text{ g } 43 \text{ mg} &= (53 \times 1000 + 43) \text{ mg} \\ &= (53000 + 43) \text{ mg} = 53043 \text{ mg}\end{aligned}$$

b. Since, $1 \text{ g} = 1000 \text{ mg}$

$$\begin{aligned}\text{So, } 19 \text{ g } 317 \text{ mg} &= (19 \times 1000 + 317) \text{ mg} \\ &= (19000 + 317) \text{ mg} = 19317 \text{ mg}\end{aligned}$$

c. Since, $1 \text{ dg} = 100 \text{ mg}$

$$\begin{aligned}81 \text{ dg } 14 \text{ mg} &= (81 \times 100 + 14) \text{ mg} \\ &= (8100 + 14) \text{ mg} = 8114 \text{ mg}\end{aligned}$$

d. Since, $1 \text{ dg} = 100 \text{ mg}$

$$\begin{aligned}\therefore 43 \text{ dg } 19 \text{ mg} &= (43 \times 100 + 19) \text{ mg} \\ &= (4300 + 19) \text{ mg} = 4319 \text{ mg}\end{aligned}$$

e. Since, $1 \text{ cg} = 10 \text{ mg}$

$$\begin{aligned}\text{So, } 56 \text{ cg } 4 \text{ mg} &= (56 \times 10 + 4) \text{ mg} \\ &= (560 + 4) \text{ mg} = 564 \text{ mg}\end{aligned}$$

f. Since, $1 \text{ cg} = 10 \text{ mg}$

$$\begin{aligned}\text{So, } 81 \text{ cg } 8 \text{ mg} &= (81 \times 10 + 8) \text{ mg} \\ &= (810 + 8) \text{ mg} = 818 \text{ mg}\end{aligned}$$

4. a. $1 \text{ kg} = 1000 \text{ g}$

$$\begin{aligned}42869 \text{ g} &= (42000 + 869) \text{ g} \\ &= (42 \times 1000 + 869) \text{ g} = 42 \text{ kg } 869 \text{ g}\end{aligned}$$

- b. $1 \text{ kg} = 1000 \text{ g}$
 $318642 \text{ g} = (318000 + 642) \text{ g}$
 $= (318 \times 1000 + 642) \text{ g} = 318 \text{ kg } 642 \text{ g}$
- c. Since, $1 \text{ hg} = 100 \text{ g}$
 $9163 \text{ g} = (9100 + 63) \text{ g}$
 $= (91 \times 100 + 63) \text{ g} = 91 \text{ hg } 63 \text{ g}$
- d. Since, $1 \text{ hg} = 100 \text{ g}$
 $51428 \text{ g} = (51400 + 28) \text{ g}$
 $= (514 \times 100 + 28) \text{ g} = 514 \text{ hg } 28 \text{ g}$
- e. Since, $1 \text{ dag} = 10 \text{ g}$
 $4286 \text{ g} = (4280 + 6) \text{ g}$
 $= (428 \times 10 + 6) \text{ g} = 428 \text{ dag } 6 \text{ g}$
- f. Since, $1 \text{ g} = 1000 \text{ mg}$
 $31962 \text{ mg} = (31000 + 962) \text{ mg}$
 $= (31 \times 1000 + 962) \text{ mg} = 31 \text{ g } 962 \text{ mg}$

5. a. Since, $1 \text{ g} = \frac{1}{1000} \text{ kg}$
 $41632 \text{ g} = \frac{41632}{1000} \text{ kg} = 41.632 \text{ kg}$
- a. Since, $1 \text{ g} = \frac{1}{1000} \text{ kg}$
 $519028 \text{ g} = \frac{519028}{1000} \text{ kg} = 519.028 \text{ kg}$
- c. Since, $1 \text{ g} = \frac{1}{100} \text{ hg}$
 $71462 \text{ g} = \frac{71462}{100} = 714.62 \text{ hg}$
- d. Since, $1 \text{ mg} = \frac{1}{1000} \text{ g}$
 $51428 \text{ mg} = \frac{51428}{1000} \text{ g} = 51.428 \text{ g}$
- e. $1 \text{ mg} = \frac{1}{100} \text{ dg}$
 $901628 \text{ mg} = \frac{901628}{100} \text{ dg} = 9016.28 \text{ dg}$

f. $1 \text{ mg} = \frac{1}{10} \text{ cg}$

$$2156 \text{ mg} = \frac{2156}{10} \text{ cg} = 215.6 \text{ cg}$$

Assessment Time 8.5

1. a.

	kg		g	
		1		
	5	3	7	8
+	7	4	9	1
	1	2	8	6

So, $53 \text{ kg } 782 \text{ g} + 74 \text{ kg } 916 \text{ g}$
 $= 128 \text{ kg } 698 \text{ g}$

b.

	kg			g	
	1	1	1	1	
	3	7	5	3	2
+	1	6	8	8	1
	5	4	4	1	4

So, $375 \text{ kg } 325 \text{ g} + 168 \text{ kg } 816 \text{ g}$
 $= 544 \text{ kg } 141 \text{ g}$

c.

	kg			g	
	1	1	1	1	
	2	2	5	9	2
	3	2	2	1	8
+	7	8	3	1	4
	3	3	6	4	5

So, $225 \text{ kg } 927 \text{ g} + 32 \text{ kg } 218 \text{ g}$
 $+ 78 \text{ kg } 314 \text{ g} = 336 \text{ kg } 459 \text{ g}$

d.

	g		mg	
		1		
	9	1	6	0
+	2	1	6	0
	1	1	3	2

So, $916 \text{ g } 42 \text{ mg} + 216 \text{ g } 37 \text{ mg}$
 $= 1132 \text{ g } 79 \text{ mg}$

e.

	g			mg	
	4	1	2	3	7
+	9	0	2	2	1
	1	3	1	4	8

So, $412 \text{ g } 372 \text{ mg} + 902 \text{ g } 214 \text{ mg}$
 $= 1314 \text{ g } 586 \text{ mg}$

f.

	g		mg	
		1	1	1
	1	2	8	2
	3	0	2	9
+	6	8	5	1
	4	9	9	6

So, 128 g 214 mg + 302 g 916 mg
+ 68 g 512 mg = 499 g 642 mg

2. a.

	kg		g	
	0	12	5	12
	1	2	8	6
-	9	8	3	7
	3	0	2	5

So, 128 kg 629 g - 98 kg 378 g
= 30 kg 251 g

b.

	kg		g	
		5	10	9
	7	3	6	1
-	6	1	4	2
	1	2	1	8

So, 736 kg 100 g - 614 kg 219 g
= 121 kg 881 g

c.

	hg		g	
	0	9	9	12
	1	0	0	2
-	7	2	4	3
	2	7	8	5

So, 100 hg 28 g - 72 hg 43 g
= 27 hg 85 g

d.

	g		mg	
		7	16	
	9	8	6	2
-	8	3	8	1
	1	4	2	1

So, 98 g 628 mg - 83 g 814 mg
= 14 g 214 mg

e.

	g		mg	
			2	11
	2	8	6	3
-	1	4	3	1
	1	4	3	1

So, 286 g 314 mg - 143 g 143 mg
= 143 g 171 mg

f.

	g		mg	
	4	9	10	3
	5	0	0	4
-	4	2	7	3
	7	3	0	3

So, 200 g 406 mg - 427 g 374 mg
= 73 g 032 mg

Assessment Time 8.6

1. a.

kg			g		
2	3	1	4	4	
3	5	6	3	8	9
×			5		
1	7	8	1	9	4

$$356 \text{ kg } 389 \text{ g} \times 5 = 1781 \text{ kg } 945 \text{ g}$$

b.

kg			g		
			7	4	
4	7	2	0	9	6
×			8		
3	7	7	6	7	6

$$472 \text{ kg } 96 \text{ g} \times 8 = 3776 \text{ kg } 768 \text{ g}$$

c.

hg			g		
5	3	4	5		
6	7	4	5	8	
×			7		
4	7	2	4	0	6

$$674 \text{ hg } 58 \text{ g} \times 7 = 4724 \text{ hg } 6 \text{ g}$$

d.

g			mg		
3	1	2	1	2	
5	7	2	5	2	4
×			5		
2	8	6	2	6	0

$$572 \text{ g } 524 \text{ mg} \times 5 = 2862 \text{ g } 620 \text{ mg}$$

e.

g			mg		
1	3	1	2		
1	2	8	3	7	2
×			4		
5	1	3	4	8	8

$$128 \text{ g } 372 \text{ mg} \times 4 = 513 \text{ g } 488 \text{ mg}$$

f.

dg			mg		
	2	5	3		
2	3		8	6	
×			6		
1	4	3	1	6	

$$23 \text{ g } 86 \text{ mg} \times 6 = 143 \text{ dg } 16 \text{ mg}$$

2. a. Since 1 kg = 1000 g

$$\text{So, } 28 \text{ kg } 376 \text{ g} = (28 \times 1000 + 376)$$

$$= (28000 + 376) \text{ g}$$

$$= 28376 \text{ g}$$

$$\text{Now, } 28376 \text{ g} \div 4 = 7094 \text{ g}$$

$$7094 \text{ g} = (7000 + 94) \text{ g}$$

$$= 7 \text{ kg } 94 \text{ g}$$

$$\begin{array}{r} 7094 \\ 4 \overline{) 28376} \\ \underline{-28} \downarrow \\ 037 \\ \underline{-36} \downarrow \\ 17 \\ \underline{-16} \downarrow \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

b. Since 1 kg = 1000 g

$$\text{So, } 816 \text{ kg } 915 \text{ g} = (816 \times 1000 + 915)$$

$$= (816000 + 915) \text{ g}$$

$$= 816915 \text{ g}$$

$$\text{Now, } 816915 \text{ g} \div 5 = 163383 \text{ g}$$

$$163383 \text{ g} = (163000 + 383) \text{ g}$$

$$= 163 \text{ kg } 383 \text{ g}$$

$$\begin{array}{r} 163383 \\ 5 \overline{) 816915} \\ \underline{-5} \downarrow \\ 31 \\ \underline{-30} \downarrow \\ 16 \\ \underline{-15} \downarrow \\ 19 \\ \underline{-15} \downarrow \\ 41 \\ \underline{-40} \downarrow \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

c. Since, 1 hg = 100 g

$$214 \text{ hg } 56 \text{ g} = (214 \times 100 + 56) \text{ g}$$

$$= (21400 + 56) \text{ g}$$

$$= 21456 \text{ g}$$

$$\text{Now, } 21456 \text{ g} \div 8 = 2682 \text{ g}$$

$$2682 \text{ g} = (26 \times 100 + 82) \text{ g}$$

$$= 26 \text{ hg } 82 \text{ g}$$

$$\begin{array}{r} 2682 \\ 8 \overline{) 21456} \\ \underline{-16} \downarrow \\ 54 \\ \underline{-48} \downarrow \\ 65 \\ \underline{-64} \downarrow \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

d. Since, 1 g = 1000 mg

$$\text{So, } 374 \text{ g } 916 \text{ mg} = (374 \times 1000 + 916) \text{ mg}$$

$$= (374000 + 916) \text{ mg}$$

$$= 374916 \text{ mg}$$

$$\text{Now, } 374916 \text{ g} \div 2 = 187458 \text{ mg}$$

$$= (187000 + 458) \text{ mg}$$

$$= (187 \times 1000 + 458) \text{ mg}$$

$$= 187 \text{ g } 458 \text{ mg}$$

$$\begin{array}{r} 187458 \\ 2 \overline{) 374916} \\ \underline{-2} \\ 17 \\ \underline{-16} \\ 14 \\ \underline{-14} \\ 09 \\ \underline{-8} \\ 11 \\ \underline{-10} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

e. Since, 1 g = 1000 mg

$$\text{So, } 412 \text{ g } 326 \text{ mg} = (412 \times 1000 + 326) \text{ mg}$$

$$= (412000 + 326) \text{ mg}$$

$$= 412326 \text{ mg}$$

$$\text{Now, } 412326 \text{ g} \div 9 = 45814 \text{ mg}$$

$$= (45000 + 814) \text{ mg}$$

$$= (45 \times 1000 + 814) \text{ mg}$$

$$= 45 \text{ g } 814 \text{ mg}$$

$$\begin{array}{r} 45814 \\ 9 \overline{) 412326} \\ \underline{-36} \\ 52 \\ \underline{-45} \\ 73 \\ \underline{-72} \\ 12 \\ \underline{-9} \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

f. Since, 1 dg = 100 mg

$$\text{So, } 216 \text{ dg } 36 \text{ mg} = (216 \times 100 + 36) \text{ mg}$$

$$= (21600 + 36) \text{ mg}$$

$$= 21636 \text{ mg}$$

$$\text{Now, } 21636 \text{ mg} \div 4 = 5409 \text{ mg}$$

$$5409 \text{ mg} = (54 \times 100 + 9) \text{ mg}$$

$$= (5400 + 9) \text{ mg}$$

$$= 54 \text{ dg } 9 \text{ mg}$$

$$\begin{array}{r} 5409 \\ 4 \overline{) 21636} \\ \underline{-20} \\ 16 \\ \underline{-16} \\ 036 \\ \underline{-36} \\ 0 \end{array}$$

Assessment Time 8.7

1. a. Litre b. mL c. 18523 L d. 52032 mL
2. a. Since, 1 kL = 1000 L
 $8 \text{ kL } 342 \text{ L} = (8 \times 1000 + 342) \text{ L}$
 $= (8000 + 342) \text{ L} = 8342 \text{ L}$
 - b. Since, 1 kL = 1000 L
 $41 \text{ kL } 106 \text{ L} = (41 \times 1000 + 106) \text{ L}$
 $= (41000 + 106) \text{ L} = 41106 \text{ L}$
 - c. Since, 1 hL = 100 L
 $98 \text{ hL } 58 \text{ L} = (98 \times 100 + 58) \text{ L}$
 $= (9800 + 58) \text{ L} = 9858 \text{ L}$
 - d. Since, 1 hL = 100 L
 $138 \text{ hL } 54 \text{ L} = (138 \times 100 + 54) \text{ L}$
 $= (13800 + 54) \text{ L} = 13854 \text{ L}$
 - e. Since, 1 daL = 10 L
 $39 \text{ daL } 3 \text{ L} = (39 \times 10 + 3) \text{ L}$
 $= (390 + 3) \text{ L} = 393 \text{ L}$
 - f. Since, 1 daL = 10 L
 $42 \text{ daL } 24 \text{ L} = (42 \times 10 + 24) \text{ L}$
 $= (420 + 24) \text{ L} = 444 \text{ L}$
3. a. Since, 1 L = 1000 mL
 So, $34 \text{ L } 582 \text{ mL} = (34 \times 1000 + 582) \text{ mL}$
 $= (34000 + 582) \text{ mL} = 34582 \text{ mL}$
 - b. Since, 1 L = 1000 mL
 So, $96 \text{ L } 128 \text{ mL} = (96 \times 1000 + 128) \text{ mL}$
 $= (96000 + 128) \text{ mL} = 96128 \text{ mL}$
 - c. Since, 1 dL = 100 mL
 So, $137 \text{ dL } 46 \text{ mL} = (137 \times 100 + 46) \text{ mL}$
 $= (13700 + 46) \text{ mL} = 13746 \text{ mL}$
 - d. Since, 1 dL = 100 mL
 So, $92 \text{ dL } 347 \text{ mL} = (92 \times 100 + 347) \text{ mL}$
 $= (9200 + 347) \text{ mL} = 9547 \text{ mL}$

e. Since, 1 cL = 10 mL

$$\begin{aligned}\text{So, } 42 \text{ cL } 8 \text{ mL} &= (42 \times 10 + 8) \text{ mL} \\ &= (420 + 8) \text{ mL} = 428 \text{ mL}\end{aligned}$$

f. Since, 1 cL = 10 mL

$$\begin{aligned}\text{So, } 38 \text{ cL } 9 \text{ mL} &= (38 \times 10 + 9) \text{ mL} \\ &= (380 + 9) \text{ mL} = 389 \text{ mL}\end{aligned}$$

4. a. Since, 1 kL = 1000 L

$$\begin{aligned}48163 \text{ L} &= (48000 + 163) \text{ L} \\ &= (48 \times 1000 + 163) \text{ L} = 48 \text{ kL } 163 \text{ L}\end{aligned}$$

b. Since, 1 kL = 1000 L

$$\begin{aligned}50632 \text{ L} &= (50000 + 632) \text{ L} \\ &= (50 \times 1000 + 632) \text{ L} = 50 \text{ kL } 632 \text{ L}\end{aligned}$$

c. Since, 1 hL = 100 L

$$\begin{aligned}\text{So, } 81462 \text{ L} &= (81400 + 62) \text{ L} \\ &= (814 \times 100 + 62) \text{ L} = 814 \text{ hL } 62 \text{ L}\end{aligned}$$

d. Since, 1 daL = 10 L

$$\begin{aligned}\text{So, } 41563 \text{ L} &= (41560 + 3) \text{ L} \\ &= (4156 \times 10 + 3) \text{ L} = 4156 \text{ daL } 3 \text{ L}\end{aligned}$$

e. Since, 1 L = 1000 mL

$$\begin{aligned}51432 \text{ L} &= (51 \times 1000 + 432) \text{ mL} \\ &= (51000 + 432) \text{ mL} = 51 \text{ L } 432 \text{ mL}\end{aligned}$$

f. Since, 1 L = 1000 mL

$$\begin{aligned}\text{So, } 814032 \text{ mL} &= (814000 + 32) \text{ mL} \\ &= (814 \times 1000 + 32) \text{ mL} = 814 \text{ L } 32 \text{ mL}\end{aligned}$$

5. a. Since, $1 \text{ L} = \frac{1}{1000} \text{ kL}$

$$814632 \text{ L} = \frac{814632}{1000} \text{ kL} = 814.632 \text{ kL}$$

b. Since, $1 \text{ L} = \frac{1}{100} \text{ hL}$

$$31284 \text{ L} = \frac{31284}{100} \text{ hL} = 312.84 \text{ hL}$$

c. Since, $1 \text{ L} = \frac{1}{10} \text{ daL}$

$$612042 \text{ L} = \frac{612042}{10} \text{ daL} = 61204.2 \text{ daL}$$

d. Since, $1 \text{ mL} = \frac{1}{1000} \text{ L}$

$$40628 \text{ mL} = \frac{40628}{1000} \text{ L} = 40.628 \text{ L}$$

e. Since, $1 \text{ mL} = \frac{1}{1000} \text{ L}$

$$562853 \text{ mL} = \frac{562853}{1000} \text{ L} = 562.853 \text{ L}$$

f. Since, $1 \text{ mL} = \frac{1}{100} \text{ dL}$

$$31729 \text{ mL} = \frac{31729}{100} \text{ dL} = 317.29 \text{ dL}$$

Assessment Time 8.8

1. a.

	kL		L	
	1	1	1	
	4	5	8	3
	4	5	8	3
+	7	8	6	4
	1	2	4	7

So, $458 \text{ kL } 319 \text{ L} + 986 \text{ kL } 415 \text{ L}$
 $= 1244 \text{ kL } 734 \text{ L}$

b.

	kL		L	
	1		1	
	9	1	6	4
	9	1	6	4
+	3	1	6	5
	1	2	3	9

So, $916 \text{ kL } 423 \text{ L} + 316 \text{ kL } 528 \text{ L}$
 $= 1232 \text{ kL } 951 \text{ L}$

c.

	kL		L	
	1			
	4	2	8	5
	4	2	8	5
+	3	1	9	2
	7	4	7	7

So, $428 \text{ kL } 54 \text{ L} + 319 \text{ kL } 21 \text{ L}$
 $= 747 \text{ kL } 75 \text{ L}$

d.

	L		mL	
	1		1	1
	3	2	6	4
	3	2	6	4
+	1	1	8	3
	4	4	4	8

So, $326 \text{ L } 419 \text{ mL} + 118 \text{ L } 396 \text{ mL}$
 $= 444 \text{ L } 815 \text{ mL}$

e.

	L		mL	
		1		1
	4	0	6	3
+	5	1	9	1
	9	2	5	4

So, 406 L 308 mL + 519 L 128 mL
= 925 L 436 mL

f.

	dL		mL	
		1		
	5	1	3	4
+	6	8	5	4
	1	1	9	8

So, 51 dL 34 mL + 68 dL 54 mL
= 119 dL 88 mL

2. a.

	kL		L	
		1		1
	5	2	9	6
-	4	2	8	3
	1	0	1	3

So, 529 kL 628 L - 428 kL 315 L
= 101 kL 313 L

b.

	kL		L	
			8	10
	6	3	8	9
-	3	1	6	4
	3	2	2	4

So, 638 kL 914 L - 316 kL 485 L
= 322 kL 419 L

c.

	kL		L	
	2	9	10	
	3	0	0	9
-	1	4	6	5
	1	5	4	0

So, 300 kL 916 L - 146 kL 514 L
= 154 kL 402 L

d.

	L		mL	
	3	13	6	14
	4	3	7	4
-	3	7	4	9
	0	6	2	5

So, 437 L 426 mL - 374 L 916 mL
= 62 L 510 mL

e.

	dL		mL	
	3	10		
	4	0	6	4
-	2	8	4	3
	1	2	2	1

So, 406 dL 48 mL - 284 dL 37 mL
= 122 dL 11 mL

f.

	dL		mL	
	7	16	5	18
	3	86	68	
-	1	68	59	
	2	18	09	

So, 386 dL 68 mL – 168 dL 59 mL
= 218 dL 9 mL

Assessment Time 8.9

1. a.

kL		L	
1	1	2	1
3	24	453	
×		4	
1	297	812	

324 kL 453 L $\times$ 4
= 1297 kL 812 L

b.

kL		L	
1	2	1	6
5	12	319	
×		7	
3	586	233	

512 kL 319 L $\times$ 7
= 3586 kL 233 L

c.

hL		L	
5	4	2	
8	6	53	
×		8	
6	92	24	

85 hL 53 L $\times$ 8
= 692 hL 24 L

d.

L		mL	
3	1	4	1
9	6	382	
×		5	
4	81	910	

96 L 382 mL $\times$ 5
= 481 L 910 mL

e.

L		mL	
1	4	5	3
3	17	916	
×		6	
1	907	496	

317 L 916 mL $\times$ 6
= 1907 L 496 mL

f.

dL		mL	
6	6	3	
9	7	84	
×		8	
7	82	72	

97 dL 84 mL $\times$ 8
= 782 dL 72 mL

2. a. Since, 1 kL = 1000 L

$$\begin{aligned} 471 \text{ kL } 363 \text{ L} &= (471 \times 1000 + 363) \text{ L} \\ &= (471000 + 363) \text{ L} \\ &= 471363 \end{aligned}$$

$$\begin{aligned} \text{Now, } 471363 \text{ L} \div 3 &= 157121 \text{ L} \\ &= 157121 \text{ L} = (157000 + 121) \text{ L} \\ &= (157 \times 1000 + 121) \text{ L} \\ &= 157 \text{ kL } 121 \text{ L} \end{aligned}$$

$$\begin{array}{r} 157121 \\ 3 \overline{) 471363} \\ \underline{3} \\ 17 \\ \underline{-15} \\ 21 \\ \underline{-21} \\ 03 \\ \underline{-3} \\ 06 \\ \underline{-6} \\ 03 \\ \underline{-3} \\ 0 \end{array}$$

b. Since, 1 kL = 1000 L

$$\begin{aligned} 109 \text{ kL } 107 \text{ hL} &= (109 \times 1000 + 107) \text{ L} \\ &= (109000 + 107) \text{ L} \\ &= 109107 \text{ L} \end{aligned}$$

$$\begin{aligned} \text{Now, } 109107 \text{ L} \div 9 &= 12123 \text{ L} \\ 12123 \text{ L} &= (12 \times 1000 + 123) \text{ L} \\ &= (12000 + 123) \text{ L} \\ &= 12 \text{ kL } 123 \text{ L} \end{aligned}$$

$$\begin{array}{r} 12123 \\ 9 \overline{) 109107} \\ \underline{-9} \\ 19 \\ \underline{-18} \\ 11 \\ \underline{-9} \\ 20 \\ \underline{-18} \\ 27 \\ \underline{-27} \\ 0 \end{array}$$

c. Since, 1 hL = 100 L

$$\begin{aligned} 184 \text{ hL } 36 \text{ L} &= (184 \times 100 + 36) \text{ L} \\ &= (18400 + 36) \text{ L} \\ &= 18436 \text{ L} \end{aligned}$$

$$\text{Now, } 18436 \text{ L} \div 4 = 4609 \text{ L}$$

$$\begin{array}{r} 4609 \\ 4 \overline{) 18436} \\ \underline{-16} \\ 24 \\ \underline{-24} \\ 036 \\ \underline{-36} \\ 0 \end{array}$$

d. Since, 1 L = 1000 mL

$$\text{So, } 72 \text{ L } 880 \text{ mL} = (72 \times 1000 + 880) \text{ mL}$$

$$= (72000 + 880) \text{ mL}$$

$$= 72880 \text{ mL}$$

$$72880 \text{ mL} \div 4 = 18220 \text{ mL}$$

$$= (18000 + 220) \text{ mL}$$

$$= (18 \times 1000 + 220) \text{ mL}$$

$$= 18 \text{ L } 220 \text{ mL}$$

$$\begin{array}{r} 18220 \\ 4 \overline{) 72880} \\ \underline{-4} \\ 32 \\ \underline{-32} \\ 08 \\ \underline{-8} \\ 08 \\ \underline{-8} \\ 00 \end{array}$$

e. Since, 1 L = 1000 mL

$$680 \text{ L } 465 \text{ mL} = (680 \times 1000 + 465) \text{ mL}$$

$$= (680000 + 465) \text{ mL}$$

$$= 680465 \text{ mL}$$

$$\text{Now, } 680465 \text{ mL} \div 5 = 136093 \text{ mL}$$

$$136093 \text{ mL} = (136000 + 093) \text{ mL}$$

$$= (136 \times 1000 + 093) \text{ mL}$$

$$= 136 \text{ L } 93 \text{ mL}$$

$$\begin{array}{r} 136093 \\ 5 \overline{) 680465} \\ \underline{-5} \\ 18 \\ \underline{-15} \\ 30 \\ \underline{-30} \\ 046 \\ \underline{-45} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

f. Since, 1 dL = 100 mL

$$34 \text{ dL } 56 \text{ mL} = (34 \times 100 + 56) \text{ mL}$$

$$= (3400 + 56) \text{ mL} = 3456 \text{ mL}$$

$$3456 \text{ mL} \div 2 = 432 \text{ mL}$$

$$= (400 + 32) \text{ mL}$$

$$= (4 \times 100 + 32) \text{ mL}$$

$$= 4 \text{ dL } 32 \text{ mL}$$

$$\begin{array}{r} 432 \\ 2 \overline{) 3456} \\ \underline{-3} \\ 45 \\ \underline{-4} \\ 25 \\ \underline{-24} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

Assessment Time 8.10

1. Weight of wheat bags = 98 kg 384 g

Weight of rice bags = 54 kg 694 g

Weight of sugar bags = 38 kg 186 g

Total weight of three bags

$$= 98 \text{ kg } 384 \text{ g} + 54 \text{ kg } 694 \text{ g} + 38 \text{ kg } 186 \text{ g}$$

$$= 191 \text{ kg } 264 \text{ g}$$

	kg	g
	98	384
	54	694
+	38	186
	191	264

Hence, the total weight of 3 bags is 191 kg 264 g.

134 Key Math-05

2. Total water in a bucket = 32 L

More water add in it = 18 L 458 mL

Water is the bucket after addition

$$= 32 \text{ L} + 18 \text{ L } 458 \text{ mL}$$

$$= 50 \text{ L } 458 \text{ mL}$$

	L			mL		
		1				
	3	2	0	0	0	
+	1	8	4	5	8	
	5	0	4	5	8	

Hence, the water in bucket after addition is 50 L 458 mL.

3. Total oil in a drum = 100 L

Oil leaked from the drum = 5L 318 mL

Oil remained = 100 L – 5 L 318 mL

$$= 94 \text{ L } 682 \text{ mL}$$

Hence, 94 L 682 mL of oil remained in drum

	L			mL		
	0	9	9	9	9	10
	1	0	0	0	0	0
–		5	3	1	8	
	9	4	6	8	2	

4. Petrol in the car = 40 L 380 mL

he used petrol = 15 L 435 mL

Remaining quantity of petrol

$$= 40 \text{ L } 380 \text{ mL} - 15 \text{ L } 435 \text{ mL}$$

$$= 24 \text{ L } 945 \text{ mL}$$

Hence, the remaining quantity of petrol in the car is 24 L 945 mL.

	L			mL		
	4	0	3	8	0	
–	1	5	4	3	5	
	2	4	9	4	5	

5. Total quantity of all vegetables = 18 kg 380 g

Weight of potatoes = 7 kg 395 g

Weight of onions = 3 kg 986 g

Quantity of other vegetables

$$= 18 \text{ kg } 380 \text{ g} - (7 \text{ kg } 395 \text{ g} + 3 \text{ kg } 986 \text{ g})$$

$$= 18 \text{ kg } 380 \text{ g} - 11 \text{ kg } 381 \text{ g}$$

$$= 6 \text{ kg } 999 \text{ g}$$

Hence, the quantity of other vegetables is 6 kg 999 g.

	kg			g		
		1	1	1		
	7	3	9	5		
+	3	9	8	6		
	1	1	3	8	1	

	kg			g		
		7	12	17	10	
	1	8	3	8	0	
–	1	1	3	8	1	
	0	6	9	9	9	

6. Milkman distributes milk in 8 persons = 84 L 384 mL

Each of them get milk = 84 L 384 mL ÷ 8

Since, 1 L = 1000 mL

$$84 \text{ L } 384 \text{ mL} = (84 \times 1000 + 384) \text{ mL}$$

$$= (84000 + 384) \text{ mL}$$

$$= 84384 \text{ mL}$$

$$84384 \text{ mL} \div 8 = 10548 \text{ mL}$$

$$10548 \text{ mL} = (10 \times 1000 + 548) \text{ mL}$$

$$= 10 \text{ L } 548 \text{ mL}$$

Hence, each person get 10 L 548 mL of milk.

$$\begin{array}{r} 10548 \\ 8 \overline{) 84384} \\ \underline{-7} \\ 043 \\ \underline{-40} \\ 38 \\ \underline{-32} \\ 64 \\ \underline{-64} \\ 0 \end{array}$$

7. Water tank has water = 500 L

Water drained from the tank

$$= 500 \text{ L} - 328 \text{ L } 529 \text{ mL}$$

$$= 171 \text{ L } 471 \text{ mL}$$

Hence, 171 L 471 mL of the water drained from the tank.

	L			mL		
	4	9	9	9	9	10
	5	0	0	0	0	0
-	3	2	8	5	2	9
	1	7	1	4	7	1

8. Distance covered by car from 1 L of diesel = 15 km 856 m

Distance covered by car from 8 L of diesel = 15 km 856 m $\times$ 8

km		m	
4	6	4	4
1	5	8	5
$\times$		8	
1	2	6	8

Hence, the car can go 126 km 848 m with 8 L of diesel.

9. A glass contain juice = 365 mL

$$9 \text{ glasses contain juice} = 365 \text{ mL} \times 9$$

$$= 3295 \text{ mL}$$

Hence, the 9 glasses contain 3295 mL of juice or 3.295 L

L	mL
	54
	365
$\times$	9
3	295

10. Weight of an empty cylinder = 15 kg 385 g

$$\text{Weight of 7 such cylinders} = 15 \text{ kg } 385 \text{ g} \times 7$$

$$= 107 \text{ kg } 695 \text{ g}$$

Hence, weight of 7 such cylinders is 107 kg 695 g.

kg	g
32	53
15	385
$\times$	7
107	695

Mental Maths

1. 67 m 54 cm

2. 75 kg 432 g

3. 56453

4. 87098 m

5. 45065

Multiple Choice Questions (MCQs)

1. (b) 2. (a) 3. (c) 4. (b) 5. (b)

CHAPTER-9 BASIC GEOMETRICAL CONCEPTS

Assessment Time 9.1

1. a. no b. two c. one d. no definite
2. Do yourself 3. Do yourself 4. 190 m

Assessment Time 9.2

1. a. vertex b. infinitely c. protractor d. linear pair
2. a. O ; OP , OR b. O ; OA , OB
c. O ; ON , OM
3. $\angle 1 = \angle QPR$, $\angle 2 = \angle Q$, $\angle 3 = \angle PRQ$, $\angle 4 = \angle S$, $\angle 5 = \angle SPR$
4. a. A, B, C, L b. M, N, O, N, Q

Assessment Time 9.3

1. a. quadrilateral b. equiangular
c. closed d. scalene
2. a. Equilateral Triangle b. Scalene Triangle
c. Isocles Triangle
3. a. Right-angle triangle b. Acute-angle triangle
c. Obtuse-angle triangle
4. Let the measure of third angle be x .

Since, the sum of three angles of a triangle is 180.

$$\text{So, } 48^\circ + 57^\circ + x = 180^\circ$$

$$105^\circ + x = 180^\circ$$

$$x = 180^\circ - 105^\circ = 75^\circ$$

Hence, the measure of third angle is 75° .

5. Let third angle be x°

So, each equal angle is $4x$

$$\text{Now, } x + 4x + 4x = 180^\circ$$

$$\Rightarrow 9x = 180^\circ$$

$$\Rightarrow x = \frac{180^\circ}{9} = 20^\circ$$

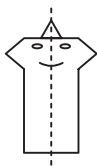
Hence, angles are 20° , 80° , 80° .

Multiple Choice Questions (MCQs)

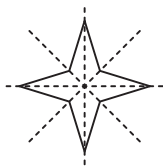
1. (c) 2. (b) 3. (d) 4. (d) 5. (a)

CHAPTER-10 : SYMMETRY (REFLECTION)**Assessment Time 10.1**

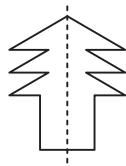
1. a.



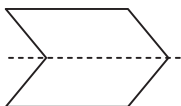
b.



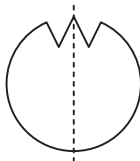
c.



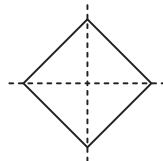
d.



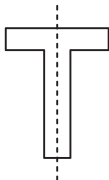
e.



f.



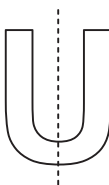
2. a.



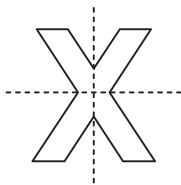
b. No

c. No

d.



e.



f. no

3. a. (iv)

b. (v)

c. (ii)

d. (i)

e. (iii)

4. Do yourself

Assessment Time 10.2

1. Do yourself

2. Do yourself

Mental Maths

1. Perpendicular bisector

2. An isosceles triangle

3. Circle

4. No

5. Symmetrical

Multiple Choice Questions (MCQs)

- | | | | |
|--------|--------|--------|--------|
| 1. (a) | 2. (d) | 3. (c) | 4. (c) |
| 5. (a) | 6. (a) | 7. (b) | 8. (a) |

CHAPTER 11: PERIMETER AND AREA of RECTILINEAR FIGURE

Assessment Time 11.1

1. a. Perimeter of triangle = $AB + BC + AC$
 $= 9 \text{ cm} + 10 \text{ cm} + 7 \text{ cm}$
 $= 26 \text{ cm}$

b. Perimeter of triangle = $PQ + QR + PR$
 $= 15 \text{ cm} + 18 \text{ cm} + 12 \text{ cm} = 45 \text{ cm}$

c. Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (12 + 14) = 2 \times 26$
 $= 52 \text{ cm}$

d. Perimeter of square = $4 \times \text{side}$
 $= 4 \times 15 \text{ cm} = 60$
2. a. Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (20 + 15)$
 $= 2 \times 35 = 70 \text{ cm}$

b. Perimeter of square = $4 \times \text{side}$
 $= 4 \times 15 = 60 \text{ cm}$

c. Perimeter of square = $4 \times \text{side}$
 $80 = 4 \times \text{side}$
 $\text{side} = 80 \div 4 = 20 \text{ cm}$

d. Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (22 + 18)$
 $= 2 \times 40 = 80 \text{ cm}$

e. Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (25.4 + 16.5)$
 $= 2 \times 41.9 = 83.8 \text{ cm}$

f. Perimeter of square = $4 \times \text{side}$
 $72 = 4 \times \text{side}$
 $\text{side} = 72 \div 4 = 18 \text{ cm}$

3. Perimeter of triangular field = $285 \text{ m} + 368 \text{ m} + 230 \text{ m}$
 $= 883 \text{ m}$
 Cost of fencing it = ₹ (883×7.85)
 $= ₹ 6931.55 \text{ m}$
4. Perimeter of square = $4 \times \text{side}$
 $= 4 \times 385 = 1540 \text{ m}$
 Cost of fencing it = ₹ (1540×9.80)
 $= ₹ 15092$
5. Perimeter of rectangular garden = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (255 + 238)$
 $= 2 \times 493 = 986 \text{ m}$
 Distance covered in 1 round = Perimeter of garden
 Distance covered in 8 round = 8×986
 $= 7888 \text{ m}$
6. Perimeter of square park = $4 \times \text{side}$
 $= 4 \times 95 = 380 \text{ m}$
 Perimeter of rectangular park = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (110 + 75)$
 $= 2 \times 185 = 370 \text{ m}$
 Manya cover more distance by 10 m ($380 \text{ m} - 370$)
7. Perimeter of rectangular park = $2 \times (\text{length} + \text{breadth})$
 $= 2 \times (40 + 30)$
 $= 2 \times 70 = 140 \text{ m}$
 Distance covered by him = $10 \times \text{perimeter of rectangular park}$
 $= 140 \times 10 = 1400 \text{ m}$
8. Perimeter of regular hexagon = $6 \times \text{side}$
 Perimeter of two regular hexagon = $11 \times 30 = 330 \text{ cm}$
9. Let the breadth of rectangle be x
 Length = $3 \times \text{breadth} = 3x$
 Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$
 $40 = 2 \times (x + 3x)$
 $40 = 2 \times (4x)$
 $40 = 8x$
 $x = 40 \div 8 = 5 \text{ cm}$

Breadth 5 cm

$$\text{Length} = 3x = 3 \times 5 \text{ cm} = 15 \text{ cm}$$

10. Let breadth of rectangular field be x m.

$\therefore$ Length of it will be $2x$

$$\text{Distance cover in 4 rounds} = 6 \text{ km} = 6000 \text{ m}$$

$$\therefore \text{Distance covered in 1 round} = 6000 \div 4 = 1500$$

$$\text{Perimeter of field} = 1500 \text{ m}$$

$$2(2x + x) = 1500 \text{ m}$$

$$6x = 1500 \text{ m}$$

$$x = \frac{1500}{6} = 250 \text{ m}$$

Hence, length of field is 500 m.

11. Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$

$$360 = 2 \times (\text{length} + 85)$$

$$\frac{360}{2} = \text{length} + 85$$

$$180 = \text{length} + 85$$

$$\text{length} = 180 - 85 = 95 \text{ m}$$

The length of rectangular garden is 95 m.

12. Perimeter of square park = $\frac{1872}{12} = 156 \text{ m}$

$$\text{Perimeter of square park} = 4 \times \text{side}$$

$$156 = \frac{154}{4} = 39 \text{ m}$$

Challenge!

$$\text{Length of square park} = 60 \text{ m}$$

$$\text{Breadth of park} = 45 \text{ m}$$

$$\text{Perimeter of rectangular park} = \text{perimeter of square park}$$

$$\Rightarrow 2(L + 45) = 4 \times 60$$

$$\Rightarrow L + 45 = \frac{240}{2} = 120$$

$$\Rightarrow L = 120 - 45 = 75 \text{ m}$$

Health Literacy (NCF)

$$\text{Perimeter of park} = 2 (L + B)$$

$$= 2 (118 + 86)$$

$$= 2 \times 204 = 408 \text{ m}$$

$$\begin{aligned}\text{Distance covered in 8 round} &= 408 \times 8 = 3264 \text{ m} \\ &= 3.264 \text{ km}\end{aligned}$$

No, she does not achieve her target.

Assessment Time 11.2

1. a. Area of rectangle = length $\times$ breadth

$$= 6 \times 5 = 30 \text{ cm}^2$$

b. Area of rectangle = Length $\times$ breadth

$$= 10 \times 5 = 50 \text{ cm}^2$$

2. Area of rectangle = length $\times$ breadth

$$= 28 \times 15 = 420 \text{ cm}^2$$

3. Area of rectangle = length $\times$ breadth

$$= 22 \times 13 = 286 \text{ cm}^2$$

4. Area of square = side $\times$ side

$$= 15 \times 15 = 225 \text{ cm}^2$$

5. Area of square park = 185×185

$$= 34225 \text{ m}^2$$

Cost of square part at the rate of ₹ 1.50 per meter

$$= ₹ (34225 \times 1.50) = ₹ 51337.50$$

6. Area of a rectangle = 2538 m^2

$$\text{Length} \times \text{breadth} = 2538 \text{ m}^2$$

$$54 \times \text{breadth} = 2538 \text{ m}^2$$

$$\text{Breadth} = \frac{2538}{54} = 47 \text{ m}$$

Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$

$$= 2 \times (54 + 47)$$

$$= 2 \times 101 = 202 \text{ m}$$

7. Area of rectangular park = length $\times$ breadth

$$120 \text{ m} \times \text{breadth} = 10308$$

$$\text{breadth} = \frac{10308}{120} = 85.9 \text{ m}$$

8. Area of square = side $\times$ side

$$= 184 \times 184 = 33856 \text{ m}^2$$

Cost of levelling square per $\text{m}^2 = ₹ 1.25$

Cost of levelling square park 33856 m^2

$$= 33856 \times 1.25 = ₹ 42,320$$

9. Area of rectangle = length $\times$ breadth

$$6240 = \text{length} \times 65$$

$$\text{length} = \frac{6240}{65} = \frac{1248}{13} = 96 \text{ m}$$

Perimeter of rectangle = $2 \times (\text{length} + \text{breadth})$

$$= 2 \times (65 + 96)$$

$$= 2 \times 161 = 322 \text{ m}$$

10. Side = one-half = $\frac{1}{2}$

Area of square = side $\times$ side

$$= \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$$

The area will be one-fourth

11. Length of fence = $4 + 4 + (10 - 1)$

$$= 17 \text{ m}$$

Critical Thinking Skill

Side of small square = 2 cm

Perimeter of small square = $4 \times 2 = 8 \text{ cm}$

Area of small square = $2^2 = 4 \text{ cm}^2$

Total area of small square = 28 cm^2

No. of small square = $\frac{28}{4} = 7$

So, length of wire = $7 \times 8 = 56 \text{ cm}$

Perimeter of rectangle = 36 cm

Half of perimeter = 18 cm

If L = 17 cm, then B = 1 cm

L = 16 cm, then B = 2

L = 15 cm, then B = 3

L = 14 cm, then B = 4 ... so on

Challenge

Perimeter of square = perimeter of rectangle

$$4 \times \text{side} = 2 (124 + 103)$$

$$\text{side} = \frac{2 \times 228}{4} = 114 \text{ m}$$

$$\begin{aligned}\text{So, area of square} &= 114 \times 114 \\ &= 12996 \text{ m}^2\end{aligned}$$

$$\begin{aligned}\text{Area of rectangular of field} &= 125 \times 103 \\ &= 12875 \text{ m}^2\end{aligned}$$

$$\begin{aligned}\text{So, area of square is more by } (12996 - 12875) \\ &= 121 \text{ m}^2\end{aligned}$$

Subject Link

$$\text{Side of square case} = 300 \text{ m}$$

$$\text{So, area of square case} = (300)^2 = 90000 \text{ m}^2$$

Mental Maths

- | | | |
|-----------------------------|------------|-----------|
| 1. Length $\times$ breadth | 2. 21.6 cm | 3. 150 cm |
| 4. same as unit of its side | | 5. 17 m |

Multiple Choice Questions (MCQs)

- | | | | | |
|--------|--------|--------|--------|---------|
| 1. (c) | 2. (b) | 3. (b) | 4. (c) | 5. (d) |
| 6. (a) | 7. (a) | 8. (b) | 9. (a) | 10. (d) |

CHAPTER-12 : MONEY**Assessment Time 12.1**

1. a. Since, ₹ 1 = 100 paise
So, ₹ 24 = (24×100) paise = 2400 paise
- b. Since, ₹ 1 = 100 paise
So, ₹ 7.67 = (7.67×100) paise = 767 paise
- c. Since, ₹ 1 = 100 paise
So, ₹ 29.37 = (29.37×100) paise = 2937 paise
- d. Since, ₹ 1 = 100 paise
So, ₹ 35.93 = (35.93×100) paise = 3593 paise
- e. Since, ₹ 1 = 100 paise
So, ₹ 172.63 = (172.63×100) paise = 17263 paise
- f. Since, ₹ 1 = 100 paise
So, ₹ 284.09 = (284.09×100) paise = 28409 paise
- g. Since, ₹ 1 = 100 paise
So, ₹ 1532.10 = (1532.10×100) paise = 153210 paise

h. Since, ₹ 1 = 100 paise

So, ₹ 9162.85 = (9162.85×100) paise = 916285 paise

2. Since, 100 paise = ₹ 1

a. 5841 paise = ₹ $(5841 \div 100)$ = ₹ 58.41

b. 7906 paise = ₹ $(7906 \div 100)$ = ₹ 79.06

c. 3178 paise = ₹ $(3178 \div 100)$ = ₹ 31.78

d. 10692 paise = ₹ $(10692 \div 100)$ = ₹ 106.92

e. 54281 paise = ₹ $(54281 \div 100)$ = ₹ 542.81

f. 46032 paise = ₹ $(46032 \div 100)$ = ₹ 460.32

g. 90602 paise = ₹ $(90602 \div 100)$ = ₹ 906.02

h. 81062 paise = ₹ $(81062 \div 100)$ = ₹ 810.62

Assessment Time 12.2

1. a.

	₹	p
	1	1
	7	6
+	5	6
	1	3

b.

	₹	p
	1	1
	3	6
+	4	9
	8	6

c.

	₹	p
	1	1
	2	7
+	9	6
	1	2

d.

	₹	p
	1	1
	3	6
+	2	4
	6	1

e.

	₹	p
	1	1
	5	4
+	3	7
	9	2

f.

	₹	p
	1	1
	4	2
+	3	1
	7	4

g.

	₹	p
	2	2
	1	4
+	5	9
	1	0

h.

	₹	p
	1	1
	3	7
+	6	0
	1	1

f.

	₹	p
	1	1
	4	5
+	5	7
	1	3

2. a.

	₹	p
	8	12
	6	9
-	4	3
	2	5

b.

	₹	p
	7	8
-	3	7
	4	1

c.

	₹	p
	7	13
	9	8
-	1	7
	8	0

d.

	₹	p
	2	11 14 16
	232	56
-	125	69
	106	86

e.

	₹	p
	3	15 5 17
	245	67
-	138	59
	107	08

f.

	₹	p
	5	11 17 13
	628	37
-	139	65
	488	72

g.

	₹	p
	4	85 97
-	185	67
	300	30

h.

	₹	p
	8	13 15
	859	45
-	316	48
	542	97

Assessment Time 12.3

1. a.

	₹	p
	2	1 4
	35	38
×		5
	176	90

b.

	₹	p
	5	5 3
	58	95
×		6
	353	70

c.

	₹	p
	1	1 1
	73	43
×		4
	293	72

d.

	₹	p
	3	1 2
	392	36
×		4
	1569	44

e.

	₹	p
	3	1 4 2
	472	84
×		5
	2364	20

f.

	₹	p
	2	5 3 6
	726	37
×		9
	6537	33

g.

	₹	p
	1	1 4 3 2
	1328	64
×		5
	6643	20

h.

	₹	p
	1	3 6 7 4
	3247	95
×		8
	25983	60

i.

	₹	p
		4 2
	4210	63
×		7
	29474	41

2. a. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 586.35 &= (586.35 \times 100) \text{ p} \\ &= 58635 \text{ p}\end{aligned}$$

$$\text{Now, } 58635 \text{ p} \div 5 = 11727 \text{ p}$$

$$\begin{aligned}11727 \text{ p} &= ₹ (11727 \div 100) \\ &= ₹ 117.27\end{aligned}$$

$$\text{Hence, ₹ } 586.35 \div 5 = ₹ 117.27$$

$$\begin{array}{r} 11727 \\ 5 \overline{) 58635} \\ \underline{-5} \\ 08 \\ \underline{-5} \\ 36 \\ \underline{-35} \\ 13 \\ \underline{-10} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

b. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 987.68 &= (987.68 \times 100) \text{ p} \\ &= 98768 \text{ p}\end{aligned}$$

$$\text{Now, } 98768 \text{ p} \div 8 = 12346 \text{ p}$$

$$\begin{aligned}12346 \text{ p} &= ₹ (12346 \div 100) \\ &= ₹ 123.46\end{aligned}$$

$$\text{Hence, ₹ } 987.68 \div 8 = ₹ 123.46$$

$$\begin{array}{r} 12346 \\ 8 \overline{) 98768} \\ \underline{-8} \\ 18 \\ \underline{-16} \\ 27 \\ \underline{-24} \\ 36 \\ \underline{-32} \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

c. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 4588.68 &= (4588.68 \times 100) \text{ p} \\ &= 458868 \text{ p}\end{aligned}$$

$$\text{Now, } 458868 \text{ p} \div 4 = 114717 \text{ p}$$

$$\begin{aligned}114717 \text{ p} &= ₹ (114717 \div 100) \\ &= ₹ 1147.17\end{aligned}$$

$$\text{Hence, ₹ } 4588.68 \div 4 = ₹ 1147.17$$

$$\begin{array}{r} 114717 \\ 4 \overline{) 458868} \\ \underline{-4} \\ 05 \\ \underline{-4} \\ 18 \\ \underline{-16} \\ 28 \\ \underline{-28} \\ 06 \\ \underline{-4} \\ 28 \\ \underline{-28} \\ 0 \end{array}$$

- d. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 5321.75 &= (5321.75 \times 100) \text{ p} \\ &= 532175 \text{ p}\end{aligned}$$

Now, $532175 \text{ p} \div 7 = 76025 \text{ p}$

$$76025 \text{ p} = ₹ (76025 \div 100)$$

$$= ₹ 760.25$$

Hence, ₹ 5321.75 ÷ 7 = ₹ 760.25

$$\begin{array}{r} 76025 \\ 7 \overline{) 532175} \\ \underline{-49} \downarrow \\ 42 \downarrow \\ \underline{-42} \downarrow \\ 017 \downarrow \\ 14 \downarrow \\ 35 \downarrow \\ \underline{-35} \\ 0 \end{array}$$

- e. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 9163.24 &= (9163.24 \times 100) \text{ p} \\ &= 916324 \text{ p}\end{aligned}$$

Now, $916324 \text{ p} \div 2 = 458162 \text{ p}$

$$458162 \text{ p} = ₹ (458162 \div 100)$$

$$= ₹ 4581.62$$

Hence, ₹ 9163.24 ÷ 2 = ₹ 4581.62

$$\begin{array}{r} 458162 \\ 2 \overline{) 916324} \\ \underline{-8} \downarrow \\ 11 \downarrow \\ \underline{-10} \downarrow \\ 16 \downarrow \\ \underline{-16} \downarrow \\ 03 \downarrow \\ \underline{-2} \downarrow \\ 12 \downarrow \\ \underline{-12} \downarrow \\ 04 \downarrow \\ \underline{-4} \\ 0 \end{array}$$

- f. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 4208.31 &= (4208.31 \times 100) \text{ p} \\ &= 420831 \text{ p}\end{aligned}$$

Now, $420831 \text{ p} \div 3 = 140277 \text{ p}$

$$140277 \text{ p} = ₹ (140277 \div 100)$$

$$= ₹ 1402.77$$

Hence, ₹ 4208.31 $\div$ 3 = ₹ 1402.77

$$\begin{array}{r} 140277 \\ 3 \overline{) 420831} \\ \underline{-3} \downarrow \\ 12 \downarrow \\ \underline{-12} \downarrow \\ 008 \downarrow \\ \underline{-6} \downarrow \\ 23 \downarrow \\ \underline{-21} \downarrow \\ 21 \downarrow \\ \underline{-21} \\ 0 \end{array}$$

g. Since, ₹ 1 = 100

$$\text{So, ₹ } 4196.80 = (4196.80 \times 100) \text{ p} = 419680 \text{ p}$$

$$\text{Now, } 4196.80 \text{ p} \div 8 = 52460 \text{ p}$$

$$52460 \text{ p} = ₹ (52460 \div 100)$$

$$= ₹ 524.60$$

$$\text{Hence, ₹ } 4196.80 \div 8 = ₹ 524.60$$

$$\begin{array}{r} 52460 \\ 8 \overline{) 419680} \\ \underline{-40} \downarrow \\ 19 \downarrow \\ \underline{-16} \downarrow \\ 36 \downarrow \\ \underline{-32} \downarrow \\ 48 \downarrow \\ \underline{-48} \downarrow \\ 00 \end{array}$$

h. ₹ 8163.40 ÷ 10 = ₹ 816.34

Assessment Time 12.4

1. Cost of a jeans = ₹ 899.95

Cost of a T-shirt = ₹ 599.65

Total cost of both items = ₹ (899.95 + 599.65)

$$= ₹ 1499.60$$

Hence, the cost of both items is ₹ 1499.60.

	₹	p
	1 1 1 1	
	8 9 9	9 5
+	5 9 9	6 5
	1 4 9 9	6 0

2. Sunny has money = ₹ 400

Cost of books he buy = ₹ 275.85

Cost of copy he buy = ₹ 37.28

Money left with him = ₹ {400 - (275.85

$$+ 37.28)$$

$$= ₹ \{400 - 313.13\}$$

$$= ₹ 86.87$$

Hence, ₹ 86.87 is left with him.

	₹	p
	1 1 1 1	
	2 7 5	8 5
+	3 7	2 8
	3 1 3	1 3

	₹	p
	3 9 9	9 10
	4 0 0	0 0
-	3 1 3	1 3
	8 6	8 7

3. Sona has money = ₹ 115.65

Her father give money = ₹ 38.34

Her mother give money = ₹ 65.69

Total money she has now

$$= ₹ (115.65 + 38.34 + 65.69)$$

$$= ₹ 219.68$$

Hence, she has ₹ 219.68 in all.

	₹	p
	1 1 1 1	
	1 1 5	6 5
	3 8	3 4
+	6 5	6 9
	2 1 9	6 8

4. Cost of 1 bat = ₹ 135.65

$$\begin{aligned} \therefore \text{Cost of 6 bat} &= ₹ 135.65 \times 6 \\ &= ₹ 813.90 \end{aligned}$$

Hence, the cost of 6 bats is ₹ 813.90.

₹				p
2	3	3	3	
1	3	5	6	5
×				6
8	1	3	9	0

5. Man deposit money = ₹ 30,000

Bank pays interest = ₹ 576.18

Total balance is bank account after 2 months

$$= ₹ (30000 + 576.18)$$

$$= ₹ 30576.18$$

Hence, the total money in bank account is ₹ 30576.18.

₹				p
3	0	0	0	0
+	5	7	6	1
3	0	5	7	6
			1	8

6. Cost of 1 bag = ₹ 75.63

$$\text{Cost of 4 bags} = ₹ 75.63 \times 4 = ₹ 302.52$$

$$\text{Cost of a box} = ₹ 38.96$$

$$\text{Cost of 3 boxes} = ₹ 38.96 \times 3 = ₹ 116.88$$

7. Cost of 8 pens = ₹ 508.48

$$\text{Cost of 1 pen} = ₹ 508.48 \div 8 = ₹ 63.56$$

Hence, cost of 1 pen is ₹ 63.56.

8. Cost of 7 shirts = ₹ 4447.45

$$\text{Cost of 1 shirt} = ₹ 4447.45 \div 7$$

$$= ₹ 635.35$$

Hence, the cost of 1 shirt is ₹ 635.35

9. Monthly salary of a person = ₹ 58,680.65

$$\text{Salary of 8 months} = ₹ 58,680.65 \times 8$$

$$= ₹ 469445.20$$

Hence, salary of 8 months is ₹ 4,69,445.20

10. Pramod has = ₹ 1000

$$\text{He buys chair for} = ₹ 385$$

$$\text{He buys table for} = ₹ 560$$

$$\text{Money left with him} = ₹ \{1000 - 385 + 560\}$$

$$= ₹ \{1000 - 945\} = ₹ 55$$

Hence, ₹ 55 is left with him.

₹				p
7	5	6	3	
×				4
3	0	2	5	2

₹				p
3	8	9	6	
×				3
1	1	6	8	8

Challenge !

Total cost of 9 chocolates = $9 \times 55 = ₹ 495$

Total cost of 9 cakes = $9 \times 33.85 = ₹ 304.65$

$$\begin{aligned}\text{Total cost of total items} &= ₹ (495 + 304.65 + 25) \\ &= ₹ 824.65\end{aligned}$$

Yes, she has enough money.

CHAPTER-13: DATA HANDLING

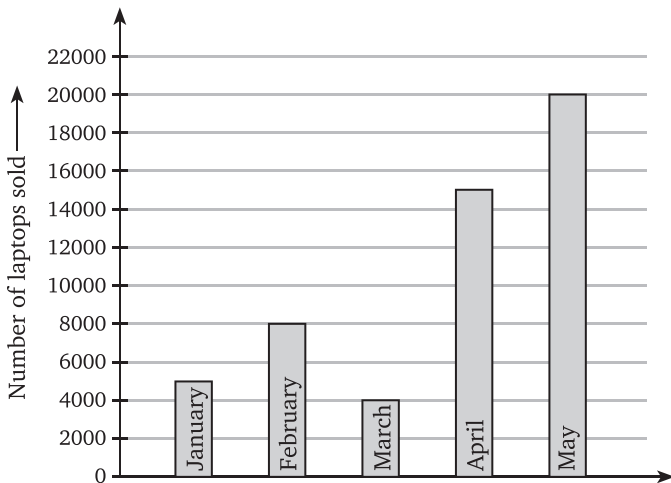
Assessment Time 13.1

- 1 Toy represents = 10 toys

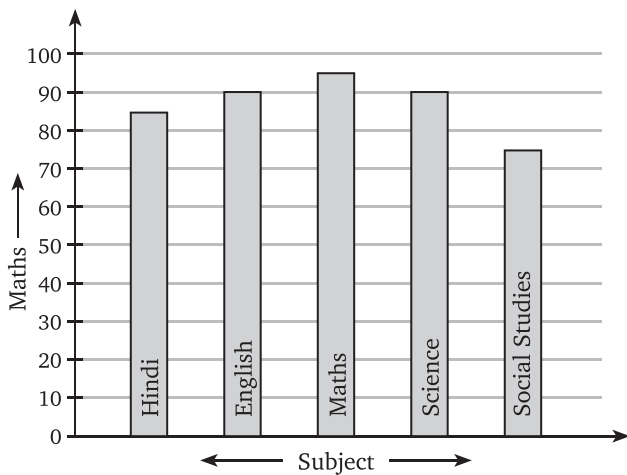
Dolls	
Monkeys	
Train	
Jeeps	
Cars	

2.
 - a. Wednesday
 - b. Saturday
 - c. LEDs sold on Tuesday = $10 \times 10 = 100$
LEDs sold on Wednesday = $15 \times 10 = 150$
Total LEDs sold on Tuesday and Wednesday together = $100 + 150 = 250$
 - d. 9 more television are Wednesday than Saturday.
3.
 - a. Bus
 - b. Rikshaw and two-wheeler
 - c. 1000
 - d. 1000

4.



5.



Tick (✓) the correct answers:

1. (b)

2. (b)

3. (c)

Model Test Paper-I

A1. (i) (c)

(ii) (d)

(iii) (d)

(iv) (b)

2. a. $500000 + 80000 + 9000 + 800 + 50 + 7 = 589857$ b. $40000000 + 8000000 + 90000 + 8000 + 600 + 50 + 7 = 4898657$

3. a. The place value of 3 is 3000.
b. The place value of 2 is 2000.
c. The place value of 6 is 60000.
d. The place value of 6 is 600.

- B1. a. $4725 + 10978 = 10978 + 4725$
b. $5163 + 0 = 5163$
c. $813 + (41 + 213) = (813 + 41) + 213$
d. $6785 + 0 = 6785$

2. Cost of a car = ₹ 5,87,690

Cost of a refrigerator = ₹ 1,55,680

Cost of a LED television = ₹ 89,935

Total money she spent in all

$$= ₹ (5,87,690 + 1,55,680 + 89,935)$$

$$= ₹ 8,33,305$$

She spent ₹ 8,33,305 in all.

3. a. Sum of negative numbers

$$\begin{array}{r} 342612 \\ + 102387 \\ \hline 444999 \end{array}$$

Now we subtract

$$\begin{array}{r} \textcircled{6} \textcircled{11} \textcircled{5} \textcircled{12} \textcircled{13} \textcircled{12} \\ \cancel{7} \cancel{1} \cancel{6} \cancel{3} \cancel{4} \cancel{2} \\ - 444999 \\ \hline 271343 \end{array}$$

- b. Sum of Positive numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \textcircled{1} \\ 442168 \\ + 106897 \\ \hline 549065 \end{array}$$

Sum of Negative numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 206342 \\ + 85916 \\ \hline 292258 \end{array}$$

Now, we subtract 2,92,258 from 5,49,065.

$$\begin{array}{r} \textcircled{4} \textcircled{14} \textcircled{8} \textcircled{10} \textcircled{15} \textcircled{15} \\ 549065 \\ - 292258 \\ \hline 256807 \end{array}$$

Hence, the simplified form is 2,56,807.

- c. Sum of
Negative numbers

$$\begin{array}{r} \textcircled{2} \textcircled{1} \textcircled{2} \\ 315218 \\ 109638 \\ + 55345 \\ \hline 484201 \end{array}$$

- Now, we subtract
484201 from 638916

$$\begin{array}{r} \textcircled{5} \textcircled{13} \\ 638916 \\ - 484201 \\ \hline 154715 \end{array}$$

- d. Sum of
Positive numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \textcircled{1} \\ 328514 \\ + 238576 \\ \hline 567090 \end{array}$$

- Sum of
Negative numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \textcircled{1} \\ 108916 \\ + 782916 \\ \hline 891832 \end{array}$$

Now, we subtract 5,67,090 from 8,91,832.

Hence, the simplified form is 3,24,742.

$$\begin{array}{r} \textcircled{8} \textcircled{11} \textcircled{7} \textcircled{13} \\ 891832 \\ - 567090 \\ \hline 324742 \end{array}$$

C1. a. $4726 \times 512 = 512 \times 4726$

b. $72 \times (10 \times 15) = (72 \times 10) \times 15$

c. $5692 \times 0 = 0$

d. $3728 \times 1 = 3728$

2. a. 3928×296

b. 5810×906

			3	9	2	8
			×	2	9	6
		2	3	5	6	8
	3	5	3	5	2	0
	7	8	5	6	0	0
1	1	6	2	6	8	8

			5	8	1	0
			×	9	0	6
		3	4	8	6	0
	0	0	0	0	0	0
5	2	2	9	0	0	0
5	2	6	3	8	6	0

c. 3216×213

			3	2	1	6
			×	2	1	3
			9	6	4	8
		3	2	1	6	0
	6	4	3	2	0	0
	6	8	5	0	0	8

- $$\begin{aligned} \text{Number of pages machine can print in 366 month} &= \\ &= 2,64,718 \times 366 \end{aligned}$$

		2	6	4	7	1	8
				$\times$	3	6	6
	1	5	8	8	3	0	8
1	5	8	8	3	0	8	0
7	9	4	1	5	4	0	0
9	6	8	8	6	7	8	8

$$= 9,68,86,788$$

4. a. $0 \div 819 = 0$ b. $512 \div 1 = 512$
c. $2054 \div 2054 = 1$ d. $2148 \div 2148 = 1$

5. Cost of 35 tables = ₹ 12,320

$$\text{Cost of 1 table} = ₹ \frac{12,320}{35} = ₹ 352$$

Hence, the cost of 1 table is ₹ 352.

- d.1.a. 4 and 10

$$4 = 2 \times 2$$

$$10 = 2 \times 5$$

HCF of 4 and 10 = 2

- b. 10 and 18

$$10 = 2 \times 5$$

$$18 = 2 \times 3 \times 3$$

HCF of 10 and 18 = 2

- c. 35, 70 and 105

Factors of $35 = 5 \times 7$

Factors of 70 = $2 \times 5 \times 7$

Factors of 105 = $3 \times 5 \times 7$

Common factors = 3, 5

So, HCF of 35, 70 and 105 = $5 \times 7 = 35$

- d. 12, 16 and 30

Factors of $12 = 2 \times 2 \times 3$

Factors of 16 = $2 \times 2 \times 2 \times 2$

Factors of 30 = $2 \times 3 \times 5$

Common factors = 2

So, HCF of 12, 16 and 30 = 2

- e. 50, 60 and 80

$$\text{Factors of } 50 = 2 \times 5 \times 5$$

$$\text{Factors of } 60 = 2 \times 2 \times 3 \times 5$$

$$\text{Factors of } 80 = 2 \times 2 \times 2 \times 2 \times 5$$

Common factors 2, 5

$$\text{So, HCF of } 50, 60 \text{ and } 80 = 2 \times 5 = 10$$

- f. 15, 25 and 40

$$\text{Factors of } 15 = 3 \times 5$$

$$\text{Factors of } 25 = 5 \times 5$$

$$\text{Factors of } 40 = 2 \times 2 \times 2 \times 5$$

Common factor = 5

$$\text{So, HCF of } 15, 25 \text{ and } 40 = 5$$

- 2.
- $\text{HCF} \times \text{LCM} = \text{product of two number}$

$$5 \times \text{LCM} = 5525$$

$$\text{LCM} = \frac{5525}{5} = 1105$$

Hence, the LCM is ⁵1105

- 3.
- $525 = 3 \times 5 \times 5 \times 7$

$$385 = 5 \times 13 \times 13$$

So, HCF of 525 and 845 is 5.

Now, $\text{HCF} \times \text{LCM} = \text{one no.} \times \text{other no.}$

$$\therefore \text{LCM} = \frac{525 \times 845}{5} = 88725$$

Model Test Paper-II

- A1. (i) (b) (ii) (b) (iii) (c) (iv) (c)

$$2. \text{ a. } 3.5 \text{ to } 6.0 = \frac{3.5}{6.0} = \frac{35}{60} = \frac{7}{12} = 7 : 12$$

$$\text{b. } 300 \text{ g to } 800 \text{ g} = \frac{300}{800} = \frac{3}{8} = 3 : 8$$

- c. 6 kg to 350 g

$$\text{Since } 1 \text{ kg} = 1000 \text{ g}$$

$$\therefore 6 \text{ kg} = 6 \times 1000 = 6000 \text{ g}$$

$$\text{So, } 6000 \text{ g to } 350 \text{ g} = \frac{6000}{350} = \frac{120}{7} = 120 : 7$$

- d. 55 paise to ₹ 4

$$\text{₹ 4} = 400 \text{ paise}$$

$$\text{So, } 55 \text{ paise} : 400 \text{ paise} = \frac{55}{400} = \frac{11}{80} = 11 : 80$$

- e. 500 mL to 8 L

$$\text{Since } 1 \text{ L} = 1000 \text{ mL}$$

$$8 \text{ L} = 8000 \text{ mL}$$

$$\text{So, } 500 \text{ mL} : 8000 \text{ mL} = \frac{500}{8000} = \frac{1}{16} = 1 : 16$$

- f. 20 minute to 3 hours

$$\text{Since } 1 \text{ hr} = 60 \text{ minutes}$$

$$3 \text{ hrs} = 180 \text{ minutes}$$

$$\text{So, } 20 \text{ mins} : 180 \text{ min} = \frac{20}{180} = \frac{1}{9} = 1 : 9$$

- g. 6 months to 3 years

$$\text{Since } 1 \text{ year} = 12 \text{ months}$$

$$3 \text{ years} = 36 \text{ months}$$

$$\text{So, } 6 \text{ months} : 36 \text{ months} = \frac{6}{36} = \frac{1}{6} = 1 : 6$$

- h. 30 cm to 5 m

$$\text{Since } 1 \text{ m} = 100 \text{ cm}$$

$$5 \text{ m} = 5 \times 100 = 500 \text{ cm}$$

$$\text{So, } 30 \text{ cm} : 500 \text{ cm} = \frac{30}{500} = \frac{3}{50} = 3 : 50$$

- i. 400 m to 6 km

$$\text{Since } 1 \text{ km} = 1000 \text{ m}$$

$$6 \text{ km} = 6000 \text{ m}$$

$$\text{So, } 400 \text{ m} : 6000 \text{ m} = \frac{400}{6000} = \frac{1}{15} = 1 : 15$$

3. First goldsmith

$$\text{Ratio of gold and copper} = 5 : 3$$

$$\text{So, fraction of gold} = \frac{5}{8}$$

Second goldsmith

$$\text{Ratio of gold and copper} = 6 : 4$$

$$\text{So, fraction of gold} = \frac{6}{10} = \frac{3}{5}$$

Now, $\frac{5}{8}$ and $\frac{3}{5}$

On cross multiplication,

$$5 \times 5 = 25 \quad \text{and} \quad 3 \times 8 = 24$$

Since $5 \times 5 > 3 \times 8$

$$\text{So, } \frac{5}{8} > \frac{3}{5}$$

Here, quality of first goldsmith is better.

B1. a. The largest unit of length is **km**.

b. The standard unit of length is **metre**.

c. The smaller unit of length is **cm**.

d. 15 km = **15000** m.

2. a. 1 m = 100 cm

$$\begin{aligned} 9 \text{ m } 37 \text{ cm} &= (9 \times 100 + 37) \text{ cm} \\ &= (900 + 37) \text{ cm} = 937 \text{ cm} \end{aligned}$$

b. 1 m = 1000 mm

$$\begin{aligned} 18 \text{ m } 416 \text{ mm} &= (18 \times 1000 + 416) \text{ mm} \\ &= 18416 \text{ mm} \end{aligned}$$

c. 1 cm = 10 mm

$$\begin{aligned} 72 \text{ cm } 5 \text{ mm} &= (72 \times 10 + 5) \text{ mm} \\ &= (720 + 5) \text{ mm} = 725 \text{ mm} \end{aligned}$$

3. a. 55 m 63 cm by 9

	m	cm
	55	63
	×	9
	500	67

$$= 500 \text{ m } 67 \text{ cm}$$

b. 372 km 56 m by 7

km	m
372	56
×	7
2604	392

$$= 2604 \text{ km } 392 \text{ m}$$

c. 24 cm 6 mm by 8

cm	mm
24	6
×	8
196	8

$$24 \text{ cm } 6 \text{ mm} \times 8 = 196 \text{ cm } 8 \text{ mm}$$

4. a. $506 \text{ m } 8 \text{ cm} \div 8$

$1 \text{ m} = 100 \text{ cm}$

$506 \text{ m } 8 \text{ cm} = (506 \times 100 + 8) \text{ cm}$

$= 50608 \text{ cm}$

$50608 \text{ cm} \div 8 = 6326 \text{ cm}$

$6326 \text{ cm} = (6300 + 26) \text{ cm}$

$= (63 \times 100 + 26) \text{ cm} = 63 \text{ m } 26 \text{ cm}$

So, $506 \text{ m } 8 \text{ cm} \div 8 = 63 \text{ m } 26 \text{ cm}$

$$\begin{array}{r} 6326 \\ 8 \overline{) 50608} \\ \underline{-48} \\ 26 \\ \underline{-24} \\ 20 \\ \underline{-16} \\ 48 \\ \underline{-48} \\ 0 \\ \underline{} \\ 0 \end{array}$$

b. $84 \text{ cm } 8 \text{ mm}$ by 4

Since $1 \text{ cm} = 10 \text{ mm}$

$84 \text{ cm } 8 \text{ mm} = (84 \times 10 + 8) \text{ mm}$

$= (840 + 8) \text{ mm} = 848 \text{ mm}$

$848 \text{ mm} \div 4 = 212 \text{ mm}$

$212 \text{ mm} = 21 \text{ cm } 2 \text{ mm}$

$$\begin{array}{r} 212 \\ 4 \overline{) 848} \\ \underline{-8} \\ 04 \\ \underline{-4} \\ 08 \\ \underline{-8} \\ 0 \\ \underline{} \\ 0 \end{array}$$

c. $140 \text{ hm } 56 \text{ m} \div 4$

$= (140 \times 100 + 56) \text{ m}$

$= (14000 + 56) \text{ m} = 14056 \text{ m}$

$14056 \text{ m} \div 4 = 3514 \text{ m}$

$3514 \text{ m} = (3500 + 14) \text{ m}$

$= (35 \times 100 + 14) \text{ m}$

$= 35 \text{ hm } 14 \text{ m}$

$140 \text{ hm } 56 \text{ m} \div 4 = 35 \text{ hm } 14 \text{ m}$

$$\begin{array}{r} 3514 \\ 4 \overline{) 14056} \\ \underline{-12} \\ 20 \\ \underline{-20} \\ 05 \\ \underline{-4} \\ 16 \\ \underline{-16} \\ 0 \\ \underline{} \\ 0 \end{array}$$

5. a. $458 \text{ kL } 319 \text{ L}$ and $786 \text{ kL } 415 \text{ L}$

	kL		L	
	1	1	1	
	4	5	8	319
+	7	8	6	415
	1	2	4	734

So, $458 \text{ kL } 319 \text{ L} + 786 \text{ kL } 415 \text{ L}$
 $= 1244 \text{ kL } 734 \text{ L}$

- b. 51 dL 34 mL and 68 dL 54 mL

	dL			mL
		5	1	34
+		6	8	54
		1	1	88

$$\text{So, } 51 \text{ dL } 34 \text{ mL} + 68 \text{ dL } 54 \text{ mL} \\ = 119 \text{ dL } 88 \text{ mL}$$

6. A bucket has water = 32 L
 More water add into it = 18 L 458 mL
 So, water in bucket = 32 L + 18 L 458 mL
 = 50 L 458 mL

Hence, now 50 L 458 mL water in bucket.

- C1. Perimeter of triangle = 285 m + 368 m + 230 m
 = 883 m

$$\text{Cost of fencing it with wire} = ₹ (883 \times 7.85) \\ = ₹ 6931.55$$

$$\begin{array}{r} 883 \\ \times 7.85 \\ \hline 4415 \\ 70640 \\ + 618100 \\ \hline 693155 \end{array}$$

2. Area of a rectangle = length $\times$ breadth
 = 22 $\times$ 13
 = 286 cm²

Hence, the area of rectangle 286 cm².

3. Side of a square = $\frac{1}{2}$
 Area of a square = side $\times$ side
 = $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

Hence, the area of square is one-fourth.

- D.1.a. ₹ 24

$$\text{Since, } ₹ 1 = 100 \text{ paise} \\ ₹ 24 = (24 \times 100) \text{ paise} \\ = 2400 \text{ paise}$$

- b. ₹ 7.67

$$\text{Since, } ₹ 1 = 100 \text{ paise} \\ ₹ 7.67 = (7.67 \times 100) \text{ p} \\ = 767 \text{ paise}$$

- c. ₹ 29.37

$$\text{Since, } ₹ 1 = 100 \text{ paise}$$

- d. ₹ 35.93

$$\text{Since, } ₹ 1 = 100 \text{ paise}$$

$$\begin{aligned}\text{₹ } 29.37 &= (29.37 \times 100) \text{ p} & \text{₹ } 35.93 &= (35.93 \times 100) \text{ p} \\ &= 2937 \text{ paise} & &= 3593 \text{ p}\end{aligned}$$

2. a. 5841 paise

Since, ₹ 1 = 100 paise

$$\text{₹ } (5841 \div 100) = \text{₹ } 58.41$$

b. 7906 paise

Since, ₹ 1 = 100 paise

$$\text{₹ } (7906 \div 100) = \text{₹ } 79.06$$

c. 3178 paise

$$\text{₹ } (3178 \div 100) = \text{₹ } 31.78$$

3. a. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 586.35 &= (586.35 \times 100) \text{ p} \\ &= 58635 \text{ p}\end{aligned}$$

$$\text{Now, } 58635 \text{ p} \div 5 = 11727 \text{ p}$$

$$11727 \text{ p} = \text{₹ } (11727 \div 100)$$

$$= \text{₹ } 117.27$$

$$\text{Hence, ₹ } 586.35 \div 5 = \text{₹ } 117.27$$

b. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 987.68 &= (987.68 \times 100) \text{ p} \\ &= 98768 \text{ p}\end{aligned}$$

$$\text{Now, } 98768 \text{ p} \div 8 = 12346 \text{ p}$$

$$12346 \text{ p} = \text{₹ } (12346 \div 100)$$

$$= \text{₹ } 123.46$$

$$\text{Hence, ₹ } 987.68 \div 8 = \text{₹ } 123.46$$

c. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 4588.68 &= (4588.68 \times 100) \text{ p} \\ &= 458868 \text{ p}\end{aligned}$$

$$\text{Now, } 458868 \text{ p} \div 4 = 114717 \text{ p}$$

$$114717 \text{ p} = \text{₹ } (114717 \div 100)$$

$$= \text{₹ } 1147.17$$

$$\text{Hence, ₹ } 4588.68 \div 4 = \text{₹ } 1147.17$$

$$\begin{array}{r} 11727 \\ 5 \overline{) 58635} \\ \underline{-5} 8 \\ 8 \\ \underline{-5} \\ 3 6 \\ \underline{-3} 5 \\ 1 3 \\ \underline{-1} 0 \\ 3 5 \\ \underline{-3} 5 \\ 0 \end{array}$$

$$\begin{array}{r} 12346 \\ 8 \overline{) 98768} \\ \underline{-8} 8 \\ 8 \\ \underline{-1} 6 \\ 2 7 \\ \underline{-2} 4 \\ 3 6 \\ \underline{-3} 2 \\ 4 8 \\ \underline{-4} 8 \\ 0 \end{array}$$

$$\begin{array}{r} 114717 \\ 4 \overline{) 458868} \\ \underline{-4} 5 \\ 5 \\ \underline{-4} \\ 1 8 \\ \underline{-1} 6 \\ 2 8 \\ \underline{-2} 8 \\ 0 6 \\ \underline{-4} \\ 2 8 \\ \underline{-2} 8 \\ 0 \end{array}$$

d. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 5321.75 &= (5321.75 \times 100) \text{ p} \\ &= 532175 \text{ p}\end{aligned}$$

$$\text{Now, } 532175 \text{ p} \div 7 = 76025 \text{ p}$$

$$76025 \text{ p} = ₹ (76025 \div 100)$$

$$= ₹ 760.25$$

$$\text{Hence, ₹ } 5321.75 \div 7 = ₹ 760.25$$

$$\begin{array}{r} 76025 \\ 7 \overline{) 532175} \\ \underline{-49} \downarrow \downarrow \downarrow \downarrow \\ 42 \downarrow \downarrow \downarrow \downarrow \\ \underline{-42} \downarrow \downarrow \downarrow \downarrow \\ 017 \downarrow \downarrow \downarrow \downarrow \\ \underline{-14} \downarrow \downarrow \downarrow \downarrow \\ 35 \downarrow \downarrow \downarrow \downarrow \\ \underline{-35} \downarrow \downarrow \downarrow \downarrow \\ 0 \downarrow \downarrow \downarrow \downarrow \\ \underline{0} \downarrow \downarrow \downarrow \downarrow \end{array}$$

e. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 9163.24 &= (9163.24 \times 100) \text{ p} \\ &= 916324 \text{ p}\end{aligned}$$

$$\text{Now, } 916324 \text{ p} \div 2 = 458162 \text{ p}$$

$$458162 \text{ p} = ₹ (458162 \div 100)$$

$$= ₹ 4581.62$$

$$\text{Hence, ₹ } 9163.24 \div 2 = ₹ 4581.62$$

$$\begin{array}{r} 458162 \\ 2 \overline{) 916324} \\ \underline{-8} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 11 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-10} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 16 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-16} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 03 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-2} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 12 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-12} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 04 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-4} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 0 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{0} \downarrow \downarrow \downarrow \downarrow \downarrow \end{array}$$

f. Since, ₹ 1 = 100

$$\begin{aligned}\text{So, ₹ } 4208.31 &= (4208.31 \times 100) \text{ p} \\ &= 420831 \text{ p}\end{aligned}$$

$$\text{Now, } 420831 \text{ p} \div 3 = 140277 \text{ p}$$

$$140277 \text{ p} = ₹ (140277 \div 100)$$

$$= ₹ 1402.77$$

$$\text{Hence, ₹ } 4208.31 \div 3 = ₹ 1402.77$$

$$\begin{array}{r} 140277 \\ 3 \overline{) 420831} \\ \underline{-3} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 12 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-12} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 008 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-6} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 23 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-21} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 21 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{-21} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 0 \downarrow \downarrow \downarrow \downarrow \downarrow \\ \underline{0} \downarrow \downarrow \downarrow \downarrow \downarrow \end{array}$$