

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 = $400000 - 900$
 $= 399100$

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.

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

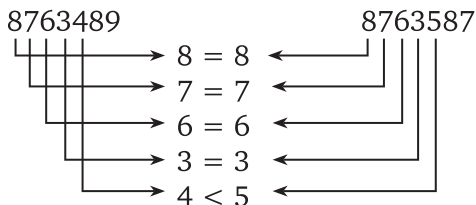
1. a. 3728569 is a 7 digit number whereas 10638564 is a 8 digit number. So, $3728569 < 10638564$
- b. Both numbers have same digit number.
 So, we compare their corresponding digits.

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

So, $9728563 > 8764594$

- c. Both numbers have same digit numbers.

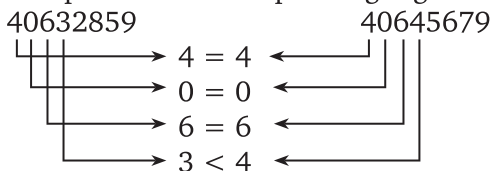
So, we compare their corresponding digits.



So, $8763789 < 8763587$

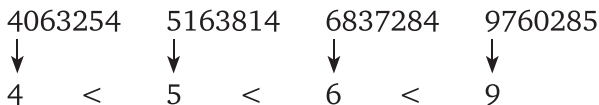
- d. Both number have same digit numbers.

So, we compare their corresponding digits.



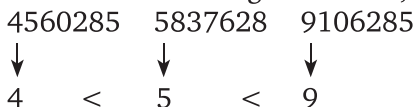
So, $40632859 < 40645679$

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

thousand five hundred sixty-four.

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

Assessment Time 1.4

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

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

	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

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

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

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

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

$$\begin{aligned}\text{Total students appeared in exam} &= 4,85,958 + 3,79,834 \\ &= 8,65,792\end{aligned}$$

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

$$\begin{aligned}\text{Total number of votes got by three candidates} \\ &= 3,89,348 + 2,56,458 + 1,15,813\end{aligned}$$

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

$$= ₹ (5,87,690 + 1,55,680 + 83,935)$$

$$= ₹ 8,27,305$$

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
	5	8	7	6	9	0
	1	5	5	6	8	0
+		8	3	9	3	5
	8	2	7	3	0	5

	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 house = ₹ 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 2.4

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

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

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

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

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

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 2.5

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	8	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 2.6

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

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

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

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

Hence, Yashu's saving is ₹ 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

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
 = 99,792

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

	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

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

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

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

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

Assessment Time 3.3

1. a.
$$\begin{array}{r} 58 \\ \times 47 \\ \hline 406 \\ + 2320 \\ \hline 2726 \end{array}$$

b.
$$\begin{array}{r} 86 \\ \times 34 \\ \hline 344 \\ + 2580 \\ \hline 2924 \end{array}$$

c.
$$\begin{array}{r} 97 \\ \times 78 \\ \hline 776 \\ + 6790 \\ \hline 7566 \end{array}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Assessment Time 3.4

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

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

$$\begin{array}{r}
 c. \quad \quad \quad 723 \\
 \quad \quad \quad \times 108 \\
 \hline
 \quad \quad \quad 5784 \\
 \quad \quad 0000 \\
 + 72300 \\
 \hline
 \underline{\underline{78084}}
 \end{array}$$

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

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

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

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

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

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

$$\begin{array}{r}
 2. \quad a. \quad \quad 3928 \\
 \quad \quad \times 296 \\
 \hline
 \quad \quad 23568 \\
 \quad 353520 \\
 + 785600 \\
 \hline
 \underline{1162688}
 \end{array}$$

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

$$\begin{array}{r}
 c. \quad \quad \quad 3216 \\
 \quad \quad \times 213 \\
 \hline
 \quad \quad 9648 \\
 \quad 32160 \\
 + 643200 \\
 \hline
 \underline{685008}
 \end{array}$$

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

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

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

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

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

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

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.

$$\begin{array}{r}
 2083 \\
 \times 144 \\
 \hline
 8332 \\
 83320 \\
 + 208300 \\
 \hline
 299952
 \end{array}$$

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

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

$$= 474768$$

Hence, 474768 bags can carried by 378 trucks

$$\begin{array}{r}
 1256 \\
 \times 378 \\
 \hline
 10048 \\
 87920 \\
 + 376800 \\
 \hline
 474768
 \end{array}$$

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

$$\begin{array}{r}
 1250 \\
 \times 56 \\
 \hline
 7500 \\
 + 62500 \\
 \hline
 70000
 \end{array}$$

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.

$$\begin{array}{r}
 \text{Total cost of all boxes} = ₹ (328 \times 570) \quad 570 \\
 = ₹ 1,86,960 \quad \times 328 \\
 \hline
 \text{Hence, the total cost of all boxes is ₹ 1,86,960} \quad 4560 \\
 \quad 11400 \\
 + 171000 \\
 \hline
 186960
 \end{array}$$

6. Cost of 1 laptop = ₹ 37,899

$$\begin{array}{r}
 \text{Cost of 124 such laptops} = ₹ (37899 \times 124) \quad 37899 \\
 = ₹ 46,99,476 \quad \times 124 \\
 \hline
 \text{Hence, cost of 124 such laptops} \quad 151596 \\
 \text{is ₹ 46,99,476.} \quad 757980 \\
 + 3789900 \\
 \hline
 4699476
 \end{array}$$

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

$$\begin{array}{r}
 \text{Cost of 98 LED television} = ₹ (50,995 \times 98) \quad 50995 \\
 = ₹ 49,97,510 \quad \times 98 \\
 \hline
 \text{Hence, the cost of 98 LED television is ₹ 49,97,510.} \quad 407960 \\
 + 4589550 \\
 \hline
 4997510
 \end{array}$$

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

$$\begin{array}{r}
 \text{Number of pages each book contain} = 215 \quad 875 \\
 \text{Number of books publisher publish in 25 years} \quad \times 215 \\
 \hline
 = 35 \times 25 = 875 \text{ books} \quad 4375 \\
 \quad 8750 \\
 \text{Number of pages they have} = 875 \times 215 \quad + 175000 \\
 = 1,88,125 \quad \hline
 188125
 \end{array}$$

9. Honeybee extract honey in a year = 28000 mL

$$\begin{array}{r}
 \text{Honeybee extract honey in 12 years} = 28000 \times 12 \quad 28000 \\
 = 336000 \text{ mL} \quad \times 12 \\
 \hline
 \text{Hence, honeybee extract 336000 mL of} \quad 56000 \\
 \text{honey in 12 years} \quad + 280000 \\
 \hline
 336000
 \end{array}$$

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

Salaried employee earns in 8 years = ₹ (34,26,716 × 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 × 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. $71642 \div 10$

b. $81062 \div 10$

Q = 7164, R = 2

Q = 8106, R = 2

c. $972859 \div 10$

d. $40283 \div 100$

Q = 97285, R = 9

Q = 402, R = 83

e. $51632 \div 100$

f. $81432 \div 100$

Q = 516, R = 32

Q = 814, R = 32

g. $62814 \div 1000$

h. $153726 \div 1000$

Q = 62, R = 814

Q = 153, R = 726

i. $91432 \div 1000$

j. $567894 \div 1000$

Q = 91, R = 432

Q = 567, R = 894

Assessment Time 3.8

1. a. $72836 \div 8$

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

Q = 9104, R = 4

b. $816324 \div 6$

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

Q = 136054, R = 0

c. $502835 \div 7$

$$\begin{array}{r}
 71833 \\
 7 \overline{) 502835} \\
 \underline{-49} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 12 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-7} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 58 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-56} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 23 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-21} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 25 \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \underline{-21} \downarrow \downarrow \downarrow \downarrow \downarrow \\
 4
 \end{array}$$

Q = 71833, R = 4

d. $6163028 \div 4$

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

Q = 1540757, R = 0

e. $4163728 \div 3$

$$\begin{array}{r} 1387909 \\ 3 \overline{) 4163728} \\ \underline{-3} \downarrow \\ 11 \quad \downarrow \\ \underline{-9} \downarrow \\ 26 \quad \downarrow \\ \underline{-24} \downarrow \\ 23 \quad \downarrow \\ \underline{-21} \downarrow \\ 27 \quad \downarrow \\ \underline{-27} \downarrow \downarrow \\ 028 \quad \downarrow \\ \underline{-27} \\ 1 \end{array}$$

$$Q = 1387909, R = 1$$

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. $416328 \div 6$

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

$$Q = 69388, R = 0$$

h. $4056328 \div 4$

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

$$Q = 1014082, R = 0$$

i. $7281634 \div 8$

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

$Q = 910204, R = 2$

2. a. $472896 \div 29$

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

$Q = 16306, R = 22$

b. $512816 \div 35$

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

$Q = 14651, R = 31$

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. $526821 \div 51$

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

$Q = 103,29 R = 42$

d. $4026352 \div 42$

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

$Q = 95865, R = 22$

f. $916382 \div 68$

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

$Q = 13476, R = 14$

g. $7163242 \div 69$

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

Q = 103815, R = 7

h. $4023782 \div 86$

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

Q = 46788, R = 14

i. $3714284 \div 93$

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

Q = 39938, R = 50

3. a. $8128163 \div 123$

$$\begin{array}{r}
 66082 \\
 1\ 2\ 3 \overline{) 8128163} \\
 -738 \downarrow \downarrow \downarrow \\
 \underline{748} \downarrow \downarrow \downarrow \\
 -738 \downarrow \downarrow \downarrow \\
 \underline{1016} \downarrow \downarrow \downarrow \\
 -984 \downarrow \downarrow \downarrow \\
 \underline{323} \downarrow \downarrow \downarrow \\
 -246 \downarrow \downarrow \downarrow \\
 \underline{77}
 \end{array}$$

$$Q = 66082, R = 77$$

b. $516328 \div 214$

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

$$Q = 2412, R = 160$$

c. $9163284 \div 187$

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

$$Q = 49001, R = 97$$

d. $3728164 \div 207$

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

$$Q = 18010, R = 94$$

e. $1913728 \div 315$

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

$$Q = 6075, R = 103$$

f. $6789164 \div 457$

[illegible]

$$Q = 14855, R = 429$$

g. $8163241 \div 503$

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

Q = 16229, R = 54

h. $8196241 \div 763$

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

Q = 10742, R = 95

i. $8143248 \div 634$

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

Q = 12844, R = 152

4. a. $416330 \div 8$

$$\begin{array}{r}
 52041 \\
 8 \overline{) 416330} \\
 \underline{-40} \\
 16 \\
 \underline{-16} \\
 033 \\
 \underline{-32} \\
 10 \\
 \underline{-8} \\
 \underline{2} \\

 \end{array}$$

$$Q = 52041, R = 2$$

Checking:

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

$$\begin{aligned}
 416330 &= 8 \times 52041 + 2 \\
 &= 416328 + 2 \\
 &= 416330
 \end{aligned}$$

c. $8137286 \div 6$

$$\begin{array}{r}
 1356214 \\
 6 \overline{) 8137286} \\
 \underline{-6} \\
 21 \\
 \underline{-18} \\
 33 \\
 \underline{-30} \\
 37 \\
 \underline{-36} \\
 12 \\
 \underline{-12} \\
 08 \\
 \underline{-6} \\
 26 \\
 \underline{-24} \\
 2
 \end{array}$$

$$Q = 1356214, R = 2$$

b. $716409 \div 7$

$$\begin{array}{r}
 102344 \\
 7 \overline{) 716409} \\
 \underline{-70} \\
 016 \\
 \underline{-14} \\
 24 \\
 \underline{-21} \\
 30 \\
 \underline{-28} \\
 29 \\
 \underline{-28} \\
 1
 \end{array}$$

$$Q = 102344, R = 1$$

Checking:

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

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

Checking:

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

$$\begin{aligned}
 8137286 &= 6 \times 1356214 + 2 \\
 &= 8137284 + 2 \\
 &= 8137286
 \end{aligned}$$

e. $3172056 \div 73$

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

$$Q = 43452, R = 60$$

Checking:

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

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

g. $10632814 \div 129$

[illegible]

$$Q = 82424, R = 118$$

Checking:

Dividend = Divisor $\times$ Quotient
+ Remainder

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

$$= 9120634$$

h. $6032854 \div 216$

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

$$Q = 27929, R = 190$$

Checking:

Dividend = Divisor $\times$ Quotient
+ Remainder

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

$$= 6032854$$

Checking:

Dividend = Divisor $\times$ Quotient
+ Remainder

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

$$= 10632814$$

i. $40632814 \div 437$

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

$$Q = 92981, R = 117$$

Checking:

Dividend = Divisor $\times$ Quotient
+ 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.

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

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

$$\text{Cost of 1 water tank} = ₹ \frac{1,59,030}{62}$$

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

$$= ₹ 2565$$

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

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

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.

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

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

7. Product of two numbers = 147580

One number = 235

So, other number = $147580 \div 235$

$$= 628$$

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 $5 \times 1, 5 \times 2, 5 \times 3, 5 \times 4, 5 \times 5$
i.e. 5, 10, 15, 20, 25
- b. Multiples of 10 are $10 \times 1, 10 \times 2, 10 \times 3, 10 \times 4, 10 \times 5$
i.e. 10, 20, 30, 40, 50
- c. Multiples of 15 are $15 \times 1, 15 \times 2, 15 \times 3, 15 \times 4, 15 \times 5$
i.e. 15, 30, 45, 60, 75
- d. Multiples of 19 are $19 \times 1, 19 \times 2, 19 \times 3, 19 \times 4, 19 \times 5$
i.e. 19, 38, 57, 76, 95
- e. Multiples of 25 are $25 \times 1, 25 \times 2, 25 \times 3, 25 \times 4, 25 \times 5$
i.e. 25, 50, 75, 100, 125

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

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

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

d.
$$\begin{array}{r} 34 \\ 5 \overline{) 170} \\ - 15 \downarrow \\ \hline 20 \\ - 20 \\ \hline 0 \end{array}$$
 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. $50 = 2 \times 25, 5 \times 10, 1 \times 50$

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

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

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 not a 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. $\begin{array}{r} 97 \\ 6 \overline{) 584} \\ \underline{-54} \\ 44 \\ \underline{-42} \\ 2 \end{array}$

584 is not exactly divisible by 6.

So, 6 is a not factor of 584.

- b. $\begin{array}{r} 45 \\ 8 \overline{) 364} \\ \underline{-32} \\ 44 \\ \underline{-40} \\ 4 \end{array}$

364 is not exactly divisible by 8.

So, 8 is a not factor of 364.

- c. $\begin{array}{r} 183 \\ 5 \overline{) 915} \\ \underline{-5} \\ 41 \\ \underline{-40} \\ 15 \\ \underline{-15} \\ 0 \end{array}$

915 is exactly divisible by 5.

So, 5 is a factor of 915.

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

3050 is not exactly divisible by 15.

So, 15 is a not factor of 3050.

Assessment Time 4.2

1. a. F b. T c. F d. T

2. a. $716\textcircled{3} =$ 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.

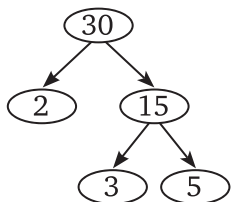
169 has more than two factors. So, it is not a prime number.

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.

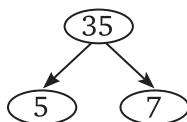
- i. Factor of 309 are 1, 3, 103 and 309.
309 has more than two factors. So, it is not a prime number.
- j. Factor of 161 are 1, 7, 23 and 161
161 has more than two factors. So, it is not a prime number.
4. Prime number between 12 and 50 are 13, 17, 19, 23, 29, 31, 37, 41, 43 and 47
5. Composite numbers 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.



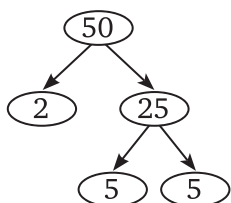
$$30 = 2 \times 3 \times 5$$

b.



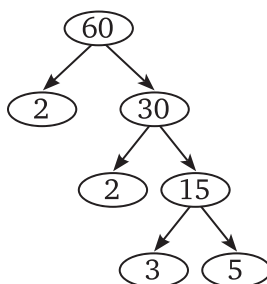
$$35 = 5 \times 7$$

c.



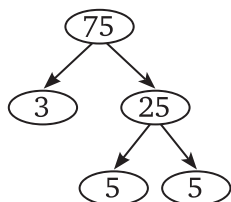
$$50 = 2 \times 5 \times 5$$

d.



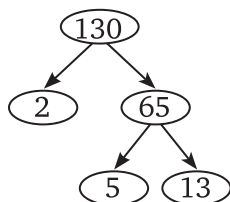
$$60 = 2 \times 2 \times 3 \times 5$$

e.



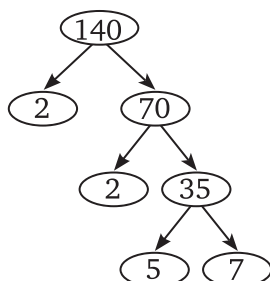
$$75 = 3 \times 5 \times 5$$

f.



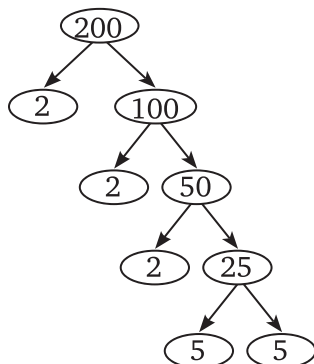
$$130 = 2 \times 5 \times 13$$

g.



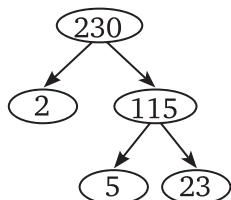
$$140 = 2 \times 2 \times 5 \times 7$$

h.



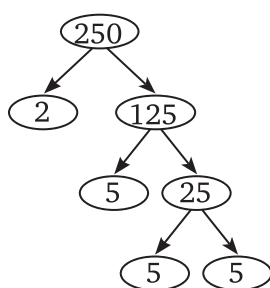
$$200 = 2 \times 2 \times 2 \times 5 \times 5$$

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

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

h.

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

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

i.

2	780
2	390
3	195
5	65
13	13
	1

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

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. 42600 00 is divisible by 4.
So, 42600 is divisible by 4.
- c. 608163 63 is not divisible by 4.
So, 608163 is not divisible by 4.
- d. 716428 28 is divisible by 4.
So, 716428 is divisible by 4.
- e. 50732 32 is divisible by 4.
So, 50732 is divisible by 4.
- f. 416348 48 is divisible by 4.
So, 416348 is divisible by 4.
- g. 77176 76 is divisible by 4.
So, 77176 is divisible by 4.
- h. 910633 33 is not divisible by 4.
So, 910633 is not divisible by 4.

Divisibility by 8

- a. 81634 634 is not divisible by 8.
So, 81634 is not divisible by 8.
- b. 42600 600 is divisible by 8.
So, 42600 is divisible by 8.
- c. 608163 163 is not divisible by 8.
So, 608163 is not divisible by 8.
- d. 716428 428 is not divisible by 8.
So, 716428 is not divisible by 8.
- e. 50732 732 is not divisible by 8.
So, 50732 is not divisible by 8.
- f. 416348 348 is not divisible by 8.
So, 416348 is not divisible by 8.
- g. 77176 176 is divisible by 8.
So, 77176 is divisible by 8.
- h. 910633 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. $310283 = 31028 - 6 = 31022$

$$3102 - 4 = 3098 = 309 - 16 = 293$$

$$29 - 6 = 23, \text{ not divisible by } 7.$$

5. Divisibility by 5

a. $5728\boxed{5} \rightarrow$ Since ones place digit is 5.

So, 57285 is divisible by 5.

b. $71285\boxed{0} \rightarrow$ Since ones place digit is 0.

So, 712850 is divisible by 5.

c. $81632\boxed{5} \rightarrow$ Since ones place digit is 5.

So, 816325 is divisible by 5.

d. $196205\boxed{5} \rightarrow$ Since ones place digit is 5.

So, 1962055 is divisible by 5.

e. $91063\boxed{0} \rightarrow$ Since ones place digit is 0.

So, 910630 is divisible by 5.

f. $47328\boxed{2} \rightarrow$ 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

$$\begin{array}{r} 107 \\ 8 \overline{) 85x} \\ \underline{-8} \downarrow \downarrow \\ 05x \end{array}$$

replaced by x .

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. $4 = 1, 2, 4$
 $10 = 1, 2, 5, 10$
 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.

2	140
2	70
5	35
7	7
	1

2	180
2	90
3	45
3	15
5	5

 $140 = 2 \times 2 \times 5 \times 7$
 $180 = 2 \times 2 \times 3 \times 3 \times 5$
 $\text{HCF} = 2 \times 2 \times 5 = 20$

e.

2	12
2	6
3	3
	1

2	32 ¹
2	16
2	8
2	4
2	2
	1

2	36
2	18
3	9
3	3
	1

 $12 = 2 \times 2 \times 3$
 $32 = 2 \times 2 \times 2 \times 2 \times 2$
 $36 = 2 \times 2 \times 3 \times 3$
 $\text{HCF} = 2 \times 2 = 4$

f.

3	21
7	7
	1

2	28
2	14
7	7
	1

5	35
7	7
	1

 $21 = 3 \times 7$
 $28 = 2 \times 2 \times 7$
 $35 = 5 \times 7$
 $\text{HCF} = 7$

g.

5	65
13	13
	1

5	85
17	17
	1

2	130
5	65
13	13
	1

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

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

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

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

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

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

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

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

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.

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

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.

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

Since last divisor is 5.

Hence, the HCF of 40, 80

and 95 is 5.

$$\begin{array}{r} 5 \overline{) 15} (3 \\ \underline{-15} \\ 0 \end{array}$$

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.

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

Hence, the last divisor is 22.

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

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

Since, the last divisor is 5.

Hence, the HCF of 35, 105

and 200 is 5.

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

Since, the HCF of 40 and 53 is 1

So, they are co-prime.

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

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

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

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

$$\begin{array}{r}
 \text{d. } 23 \overline{) 37} (1 \\
 \underline{-23} \\
 14 \overline{) 23} (1 \\
 \underline{-14} \\
 9 \overline{) 14} (1 \\
 \underline{-9} \\
 5 \overline{) 9} (1 \\
 \underline{-5} \\
 4 \overline{) 5} (1 \\
 \underline{-4} \\
 1
 \end{array}$$

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

$$\begin{array}{r}
 \text{e. } 43 \overline{) 87} (2 \\
 \underline{-86} \\
 1
 \end{array}$$

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

$$\begin{array}{r}
 \text{f. } 97 \overline{) 104} (1 \\
 \underline{-97} \\
 7 \overline{) 97} (13 \\
 \underline{-7} \\
 27 \\
 \underline{-21} \\
 6 \overline{) 7} (1 \\
 \underline{-6} \\
 1
 \end{array}$$

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.

$$\begin{array}{r}
 124 \overline{) 155} (1 \\
 \underline{-124} \\
 31 \overline{) 124} (4 \\
 \underline{-124} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 124, 155, 217 \\
 31 \overline{) 217} (7 \\
 \underline{-217} \\
 0
 \end{array}$$

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 $(888 - 3, 1370 - 7)$
 = HCF of 885, 1363 = 1

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

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

$$250 \overline{) 345} (1$$

$$\underline{-250}$$

$$95 \overline{) 250} (2$$

$$\underline{-190}$$

$$60 \overline{) 95} (1$$

$$\underline{-60}$$

$$35 \overline{) 60} (1$$

$$\underline{-35}$$

$$\underline{25}$$

$$25 \overline{) 35} (1$$

$$\underline{-25}$$

$$10 \overline{) 25} (2$$

$$\underline{-20}$$

$$5 \overline{) 10} (2$$

$$\underline{-10}$$

$$\underline{0}$$

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

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

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

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

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

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.

2	60
2	30
3	15
5	5
	1

2	90
3	45
3	15
5	5
	1

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

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

$$\text{LCM} = 2 \times 5 \times 3 \times 2 \times 3 = 180$$

d.

2	80
2	40
2	20
2	10
5	5
	1

2	130
5	65
13	13
	1

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

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

$$\text{LCM} = 2 \times 5 \times 8 \times 13 = 1040$$

e.

2	10
5	5
	1

5	25
5	5
	1

3	75
5	25
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	20
2	10
5	5
	1

2	50
5	25
5	5
	1

2	60
2	30
3	15
5	5
	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
7	7
	1

2	42
3	21
7	7
	1

3	63
3	21
7	7
	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	24
2	12
2	6
3	3
	1

2	80
2	40
2	20
2	10
5	5
	1

2	112
2	56
2	28
2	14
7	7
	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

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 \\ = 240$$

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

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

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

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \\ = 1200$$

d.

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

$$\text{LCM} = 2 \times 2 \times 3 \times 5 \times 5 \\ = 300$$

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

f.

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

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

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

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

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

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 5 \\ &\quad \times 5 \times 7 = 8400\end{aligned}$$

$$\begin{aligned}\text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 7 \\ &= 1680\end{aligned}$$

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

$$\begin{aligned}\text{So, LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \\ &\quad \times 3 \times 3 = 432\end{aligned}$$

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.
$$\begin{array}{r} 10 \overline{) 218} (21 \\ \underline{-20} \\ 18 \\ \underline{-10} \\ 8 \end{array}$$

$$\text{Quotient} = 15$$

$$\text{Remainder} = 5$$

$$\text{So, } \frac{125}{8} = 15 \frac{5}{8}$$

$$\text{Quotient} = 21$$

$$\text{Remainder} = 7$$

$$\text{So, } \frac{218}{10} = 21 \frac{8}{10}$$

$$5. \text{ Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{numerator}}{\text{Denominator}}$$

$$a. \quad 4 \frac{2}{5} = \frac{5 \times 4 + 2}{5} = \frac{20 + 2}{5} = \frac{22}{5}$$

$$b. \quad 2 \frac{5}{7} = \frac{7 \times 2 + 5}{7} = \frac{14 + 5}{7} = \frac{19}{7}$$

$$c. \quad 4 \frac{3}{8} = \frac{8 \times 4 + 3}{8} = \frac{32 + 3}{8} = \frac{35}{8}$$

$$d. \quad 5 \frac{2}{9} = \frac{9 \times 5 + 2}{9} = \frac{45 + 2}{9} = \frac{47}{9}$$

$$6. \quad a. \text{ Reciprocal of } \frac{4}{7} \text{ is } \frac{7}{4}$$

$$b. \text{ Reciprocal of } \frac{8}{17} \text{ is } \frac{17}{8}$$

$$c. \text{ Reciprocal of } 6 \frac{3}{4} \text{ or } \frac{27}{4} \text{ is } \frac{4}{27}$$

$$d. \text{ Reciprocal of } 7 \frac{3}{10} \text{ or } \frac{73}{10} \text{ is } \frac{10}{73}$$

$$7. \quad a. \quad 1 \qquad b. \text{ like} \qquad c. \text{ equal}$$

$$d. \text{ Improper fraction, natural number}$$

Assessment Time 5.4

$$1. \quad a. \quad \frac{11}{18} > \frac{7}{18} \qquad b. \quad \frac{8}{13} > \frac{5}{13} \qquad c. \quad \frac{12}{30} < \frac{17}{30}$$

$$d. \quad \frac{2}{15} \text{ and } \frac{2}{18} \qquad \text{LCM of 15 and 18 is 90.}$$

$$\frac{2}{15} \times \frac{6}{6} = \frac{12}{90} \quad \text{and} \quad \frac{2}{18} \times \frac{5}{5} = \frac{10}{90}$$

$$\text{Hence, } \frac{2}{15} > \frac{2}{18}$$

$$e. \quad \frac{3}{19} \text{ and } \frac{3}{17} \qquad \text{LCM of 19 and 17 is 323.}$$

$$\frac{3}{19} \times \frac{17}{17} = \frac{51}{323} \quad \text{and} \quad \frac{3}{17} \times \frac{19}{19} = \frac{57}{323}$$

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. $\frac{3}{8} + \frac{1}{16} + \frac{5}{32}$

LCM of 8, 16 and 32 = $2 \times 2 \times 2 \times 2 \times 2$
= 32

$$= \frac{4 \times 3 + 1 \times 2 + 1 \times 5}{32}$$

$$= \frac{12 + 2 + 5}{32} = \frac{19}{32}$$

2	8,	16,	32
2	4,	8,	16
2	2,	4,	8
2	1,	2,	4
	1,	1,	2

e. $\frac{3}{14} + \frac{5}{4} + \frac{17}{28}$

LCM of 14, 4 and 28 = $2 \times 2 \times 7$
= 28

$$= \frac{2 \times 3 + 5 \times 7 + 1 \times 17}{28}$$

$$= \frac{6 + 35 + 17}{28} = \frac{58}{28} = \frac{29}{14}$$

2	14, 4, 28
2	7, 2, 14
7	7, 1, 7
	1, 1, 1

f. $\frac{2}{5} + \frac{7}{10} + \frac{9}{25}$

LCM of 5, 10 and 25 = $5 \times 2 \times 5 = 50$

$$= \frac{2 \times 10 + 7 \times 5 + 2 \times 9}{50}$$

$$= \frac{20 + 35 + 18}{50} = \frac{73}{50}$$

5	5, 10, 25
	1, 2, 5

2. a. $3\frac{1}{3} + 2\frac{3}{15} = \frac{3 \times 3 + 1}{3} + \frac{15 \times 2 + 3}{15}$

LCM of 3 and 15 = $3 \times 5 = 15$

$$\frac{10}{3} + \frac{33}{15} = \frac{10 \times 5 + 1 \times 33}{15}$$

$$= \frac{50 + 33}{15} = \frac{83}{15} = 5\frac{8}{15}$$

3	3, 15
	1, 5

b. $3\frac{2}{7} + 3\frac{1}{14} = \frac{23}{7} + \frac{43}{14}$

LCM of 7 and 14 = $7 \times 2 = 14$

$$= \frac{2 \times 23 + 1 \times 43}{14}$$

$$= \frac{46 + 43}{14} = \frac{89}{14} = 6\frac{5}{14}$$

7	7, 14
	1, 2

c. $5\frac{1}{4} + 2\frac{3}{10} = \frac{21}{4} + \frac{23}{10}$

LCM of 4 and 10 = $2 \times 2 \times 5 = 20$

$$= \frac{5 \times 21 + 2 \times 23}{20}$$

$$= \frac{105 + 46}{20} = \frac{151}{20} = 7\frac{11}{20}$$

2	4, 10
	2, 5

$$d. \ 1\frac{3}{4} + 2\frac{1}{5} + \frac{1}{12} = \frac{7}{4} + \frac{11}{5} + \frac{1}{12}$$

$$\text{LCM of 4, 5 and 12} = 2 \times 2 \times 5 \times 3 = 60$$

$$= \frac{15 \times 7 + 12 \times 11 + 1 \times 5}{60}$$

$$= \frac{105 + 132 + 5}{60} = \frac{242}{60}$$

$$= \frac{121}{30} = 4\frac{1}{30}$$

$$\begin{array}{c|ccc} 2 & 4, & 5, & 12 \\ \hline 2 & 2, & 5, & 6 \\ \hline & 1, & 5, & 3 \end{array}$$

$$e. \ 7\frac{1}{9} + 2\frac{1}{3} + 3\frac{1}{18} = \frac{64}{9} + \frac{7}{3} + \frac{55}{18}$$

$$\text{LCM of 9, 3 and 18} = 3 \times 3 \times 2 = 18$$

$$= \frac{2 \times 64 + 7 \times 6 + 1 \times 55}{18}$$

$$= \frac{128 + 42 + 55}{18} = \frac{225}{18}$$

$$= \frac{25}{2} = 12\frac{1}{2}$$

$$\begin{array}{c|ccc} 3 & 9, & 3, & 18 \\ \hline 3 & 3, & 1, & 6 \\ \hline & 1, & 1, & 2 \end{array}$$

$$f. \ 5\frac{5}{6} + 6\frac{7}{12} + 2\frac{1}{9} = \frac{35}{6} + \frac{79}{12} + \frac{19}{9}$$

$$\text{LCM of 6, 12 and 9} = 2 \times 3 \times 2 \times 3 = 36$$

$$= \frac{6 \times 35 + 3 \times 79 + 4 \times 19}{36}$$

$$= \frac{210 + 237 + 76}{36} = \frac{523}{36} = 14\frac{19}{36}$$

$$\begin{array}{c|ccc} 2 & 6, & 12, & 9 \\ \hline 3 & 3, & 6, & 9 \\ \hline & 1, & 2, & 3 \end{array}$$

$$3. \ a. \ \frac{3}{8} - \frac{1}{8} = \frac{3-1}{8} = \frac{2}{8} = \frac{1}{4}$$

$$b. \ \frac{19}{27} - \frac{13}{27} = \frac{19-13}{27} = \frac{6}{27} = \frac{2}{9}$$

$$c. \ \frac{5}{9} - \frac{2}{9} = \frac{5-2}{9} = \frac{3}{9} = \frac{1}{3}$$

$$d. \ 2 - \frac{3}{7} = \frac{2 \times 7 - 3 \times 1}{7} = \frac{14-3}{7} = \frac{11}{7}$$

$$e. \ \frac{9}{10} - \frac{2}{5} = \frac{1 \times 9 - 2 \times 2}{10} = \frac{9-4}{10} = \frac{5}{10} = \frac{1}{2}$$

$$f. \ \frac{3}{5} - \frac{8}{17} = \frac{17 \times 3 - 8 \times 5}{85}$$

$$= \frac{51 - 40}{85} = \frac{11}{85}$$

$$\begin{aligned} 4. \quad a. \quad 4\frac{2}{3} - 2\frac{3}{7} &= \frac{14}{3} - \frac{17}{7} \\ &= \frac{7 \times 14 - 3 \times 17}{21} = \frac{98 - 51}{21} \\ &= \frac{47}{21} = 2\frac{5}{21} \end{aligned}$$

$$\begin{aligned} b. \quad 7\frac{9}{11} - 3\frac{1}{22} &= \frac{86}{11} - \frac{67}{22} \\ &= \frac{2 \times 86 - 1 \times 67}{22} = \frac{172 - 67}{22} \\ &= \frac{105}{22} = 4\frac{17}{22} \end{aligned}$$

$$\begin{aligned} c. \quad 2 - 1\frac{3}{4} &= \frac{2}{1} - \frac{7}{4} \\ &= \frac{4 \times 2 - 1 \times 7}{4} = \frac{8 - 7}{4} = \frac{1}{4} \end{aligned}$$

$$\begin{aligned} d. \quad 6\frac{1}{2} - 3\frac{1}{4} &= \frac{13}{2} - \frac{13}{4} \\ &= \frac{2 \times 13 - 1 \times 13}{4} = \frac{26 - 12}{4} = \frac{13}{4} = 3\frac{1}{4} \end{aligned}$$

$$\begin{aligned} e. \quad 3\frac{1}{4} - 1\frac{1}{8} &= \frac{13}{4} - \frac{9}{8} \\ &= \frac{2 \times 13 - 1 \times 9}{8} = \frac{26 - 9}{8} \\ &= \frac{17}{8} = 2\frac{1}{8} \end{aligned}$$

$$\begin{aligned} f. \quad 4\frac{3}{4} - 1\frac{1}{5} &= \frac{19}{4} - \frac{6}{5} \\ &= \frac{5 \times 19 - 4 \times 6}{20} = \frac{95 - 24}{20} \\ &= \frac{71}{20} = 3\frac{11}{20} \end{aligned}$$

$$5. \quad a. \quad \frac{5}{13} + \frac{2}{39} - \frac{7}{26}$$

LCM of 13, 39 and 26 = $13 \times 3 \times 2 = 78$

13	13, 39, 26
1	1, 3, 2

$$= \frac{6 \times 5 + 2 \times 2 - 3 \times 7}{78} = \frac{30 + 4 - 21}{78}$$

$$= \frac{34 - 21}{78} = \frac{13}{78} = \frac{1}{6}$$

b. $\frac{5}{18} + \frac{7}{36} - \frac{4}{12}$

$$\text{LCM of } 18, 36 \text{ and } 12 = 2 \times 2 \times 3 \times 3 = 36$$

$$= \frac{2 \times 5 + 1 \times 7 - 3 \times 4}{36} = \frac{10 + 7 - 12}{36}$$

$$= \frac{17 - 12}{36} = \frac{5}{36}$$

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. $1\frac{3}{8} - 2\frac{1}{4} + 3\frac{5}{6} = \frac{11}{8} - \frac{9}{4} + \frac{23}{6}$

$$\text{LCM of } 8, 4 \text{ and } 6 = 2 \times 2 \times 2 \times 3 = 24$$

$$= \frac{11 \times 3 - 6 \times 9 + 4 \times 23}{24} = \frac{33 - 54 + 92}{24}$$

$$= \frac{33 + 38}{24} = \frac{71}{24} = 2\frac{23}{24}$$

2		8, 4, 6
2		4, 2, 3
		2, 1, 3

e. $7\frac{1}{6} - 3\frac{1}{2} + 3\frac{2}{3} = \frac{43}{6} - \frac{7}{2} + \frac{5}{3}$

$$\text{LCM of } 6, 2 \text{ and } 3 = 6$$

$$= \frac{43 \times 1 - 3 \times 7 + 2 \times 5}{6} = \frac{43 - 21 + 10}{6}$$

$$= \frac{53 - 21}{6} = \frac{32}{6} = \frac{16}{3} = 5\frac{1}{3}$$

f. $5\frac{2}{3} - 3\frac{5}{12} - 2\frac{1}{6} = \frac{17}{3} - \frac{41}{12} - \frac{13}{6}$

$$\text{LCM of } 3, 12 \text{ and } 6 = 2 \times 3 \times 2 = 12$$

$$= \frac{4 \times 17 - 1 \times 41 - 2 \times 13}{12} = \frac{68 - 41 - 26}{12}$$

2		3, 12, 6
3		3, 6, 3
		1, 2, 1

$$= \frac{68 - 67}{12} = \frac{1}{12}$$

Assessment Time 5.6

$$1. \text{ a. } \frac{1}{9} \times \frac{3}{10} \times \frac{15}{27} = \frac{1 \times 3^1 \times 15^3}{9^3 \times 10^2 \times 27} = \frac{1}{54}$$

$$\text{b. } \frac{3}{4} \times \frac{2}{14} \times \frac{28}{18} = \frac{3 \times 2^1 \times 28^3}{4^2 \times 14 \times 18^6} = \frac{1}{6}$$

$$\text{c. } \frac{6}{7} \times \frac{3}{4} \times \frac{14}{18} = \frac{6 \times 3^1 \times 14^3}{7 \times 4^2 \times 18^3} = \frac{1}{2}$$

$$\text{d. } 6\frac{1}{5} \times \frac{9}{32} = \frac{31}{5} \times \frac{9}{32} = 1\frac{19}{160}$$

$$\text{e. } 4\frac{2}{5} \times \frac{15}{22} = \frac{21}{5} \times \frac{15}{22} = 3$$

$$\text{f. } 6\frac{1}{7} \times 5\frac{3}{5} = \frac{43}{7} \times \frac{28}{5} = 34\frac{2}{5}$$

$$2. \text{ a. } \frac{9}{15} \div \frac{12}{35} = \frac{9}{15} \times \frac{35}{12} = \frac{315}{180} = \frac{7}{4} = 1\frac{3}{4}$$

$$\text{b. } \frac{15}{16} \div \frac{20}{32} = \frac{15}{16} \times \frac{32}{20} = 1\frac{1}{2}$$

$$\text{c. } \frac{8}{7} \div \frac{24}{42} = \frac{8}{7} \times \frac{42}{24} = \frac{8 \times 42}{7 \times 24} = 2$$

$$\begin{aligned} \text{d. } 5\frac{2}{7} \div 1\frac{1}{21} &= \frac{37}{7} \div \frac{22}{21} \\ &= \frac{37}{7} \times \frac{21}{22} = \frac{111}{22} \end{aligned}$$

$$\begin{aligned} \text{e. } 3\frac{1}{5} \div \frac{8}{15} &= \frac{16}{5} \times \frac{15}{8} \\ &= \frac{16 \times 15}{5 \times 8} = 3 \times 2 = 6 \end{aligned}$$

$$\begin{aligned} \text{f. } 5\frac{2}{5} \div 2\frac{7}{10} &= \frac{27}{5} \div \frac{27}{10} \\ &= \frac{27}{5} \times \frac{10}{27} = 2 \end{aligned}$$

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

$$\begin{aligned}
 \text{He spends money on book} &= \frac{1}{5} \text{ of ₹ 2500} \\
 &= \frac{1}{5} \times 2500 = ₹ 500
 \end{aligned}$$

$$\text{Money left with him} = ₹ (2500 - 500) = ₹ 2000$$

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 = $\frac{1}{4}$

$$\text{Heena painted} = \frac{2}{6}$$

$$\text{Total} = \frac{1}{4} + \frac{2}{6} = \frac{3 \times 1 + 2 \times 2}{12} = \frac{7}{12}$$

$$\text{Remaining part} = 1 - \frac{7}{12} = \frac{12 - 7}{12} = \frac{5}{12}$$

$$\text{Part of design} = \frac{1}{2} \times \frac{5}{12} = \frac{5}{24}$$

$$\begin{aligned}
 \text{Not painted wall} &= 1 - \left(\frac{7}{12} + \frac{5}{24} \right) \\
 &= 1 - \left(\frac{14 + 5}{24} \right) \\
 &= 1 - \frac{19}{24} = \frac{5}{24}
 \end{aligned}$$

Subject Link

$$\begin{aligned}\text{Fraction of food eaten not available the next level} &= 1 - \frac{1}{10} \\ &= \frac{9}{10}\end{aligned}$$

SEL

$$\text{Total dry fruits} = 5 \text{ kg}$$

$$\text{Each box has} = \frac{1}{6} \text{ kg}$$

$$\begin{aligned}\text{So, number of boxes} &= 5 \div \frac{1}{6} \\ &= 5 \times 6 = 30\end{aligned}$$

SDG

$$\text{Saved CNG} = 33000 \text{ tonnes}$$

$$\text{Saved diesel} = 3300 \text{ tonnes}$$

$$\text{Saved petrol} = 21000 \text{ tonnes}$$

$$\begin{aligned}\text{a. Diesel to petrol} &= \frac{3300}{21000} = \frac{11}{70} \\ &= 11 : 70\end{aligned}$$

$$\begin{aligned}\text{b. Diesel to CNG} &= \frac{3300}{33000} = \frac{1}{10} \\ &= 1 : 10\end{aligned}$$

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: INTRODUCTION TO RATIO, PROPORTION AND PERCENTAGE

Assessment Time 6.1

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

$$\therefore \frac{10}{3} \times 120 : \frac{21}{5} \times 120 : \frac{49}{8} \times 120$$

$$= 400 : 504 : 735$$

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

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

Sum of ratio = 2 + 2 + 4 = 8

Perimeter of triangle = 40 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

$$\text{Hemant gets} = ₹ 5x$$

$$\text{Naman gets} = ₹ 15x$$

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 6.2

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

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.

$$\therefore 1 : 5 = 16 : x$$

$$\Rightarrow \frac{1}{5} = \frac{16}{x}$$

$$\Rightarrow x = 5 \times 16 = 80 \text{ km}$$

Critical Thinking Skills

Total money = ₹ 2,00,000

Ratio of Rahul, Adesh and Atul = 4 : 3 : 3

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 = $\frac{3}{10} \times 200000 = ₹ 60,000$

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

$$\therefore 4 : 8 = 9 : x$$

$$\Rightarrow \frac{4}{8} = \frac{9}{x}$$

$$\Rightarrow x = \frac{9 \times 8}{4} = 18$$

Assessment Time 7.1

- 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

$$\begin{aligned}\text{So, } 1362 \text{ mm} &= (1000 + 362) \text{ mm} \\ &= (1 \times 1000 + 362) \text{ mm} = 1 \text{ m } 362 \text{ mm}\end{aligned}$$

Assessment Time 7.2

1. a.

	km	m
	1	1 1
	48	054
+	96	169
	144	223

$$\begin{aligned}\text{So, } 48 \text{ km } 54 \text{ m} + 96 \text{ km } 169 \text{ m} \\ = 144 \text{ km } 223 \text{ m}\end{aligned}$$

b.

	km			m
	1	1	1	
	5	3	8	91
+	7	8	7	45
	1	3	2	636

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

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	
	1	4	4	7	5
+		8	6	5	9
	2	3	1	3	4

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	14
-	4	3	6	81
	3	2	6	33

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
	50	34
–	24	86
	25	48

$$\text{So, } 50 \text{ m } 34 \text{ cm} - 24 \text{ m } 86 \text{ cm} \\ = 25 \text{ m } 48 \text{ cm}$$

d.

	m	cm
	0 16	0 13
	169	13
–	97	08
	72	05

$$\text{So, } 169 \text{ m } 13 \text{ cm} - 97 \text{ m } 08 \text{ cm} \\ = 72 \text{ m } 05 \text{ cm}$$

e.

	cm	mm
	2 10	
	30	8
–	21	6
	09	2

$$\text{So, } 30 \text{ cm } 8 \text{ mm} - 21 \text{ cm } 6 \text{ mm} \\ = 9 \text{ cm } 2 \text{ mm}$$

f.

	cm	mm
	0 12 11	18
	132	8
–	62	9
	69	9

$$\text{So, } 132 \text{ cm } 8 \text{ mm} - 62 \text{ cm } 9 \text{ mm} \\ = 69 \text{ cm } 9 \text{ mm}$$

Assessment Time 7.3

1. a. gram b. 28000 c. 472000 d. 91038

2. a. 1 kg = 1000 g

$$54 \text{ kg } 613 \text{ g} = (54 \times 1000 + 613) \text{ g} \\ = (54000 + 613) \text{ g} \\ = 54613 \text{ g}$$

b. 1 kg = 1000 g

$$616 \text{ kg } 378 \text{ g} = (616 \times 1000 + 378) \text{ g} \\ = (616000 + 378) \text{ g} \\ = 616378 \text{ g}$$

c. Since 1 hg = 100 g

$$\text{So, } 81 \text{ hg } 39 \text{ g} = (81 \times 100 + 39) \text{ g} \\ = (8100 + 39) \text{ g} = 8139 \text{ g}$$

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. $1 \text{ kg} = 1000 \text{ g}$

$$\begin{aligned}318642 \text{ g} &= (318000 + 642) \text{ g} \\ &= (318 \times 1000 + 642) \text{ g} = 318 \text{ kg } 642 \text{ g}\end{aligned}$$

- c. Since, 1 hg = 100 g
 $9163 \text{ g} = (9100 + 63) \text{ g}$
 $= (91 \times 100 + 63) \text{ g} = 91 \text{ hg } 63 \text{ g}$
- d. Since, 1 hg = 100 g
 $51428 \text{ g} = (51400 + 28) \text{ g}$
 $= (514 \times 100 + 28) \text{ g} = 514 \text{ hg } 28 \text{ g}$
- e. Since, 1 dag = 10 g
 $4286 \text{ g} = (4280 + 6) \text{ g}$
 $= (428 \times 10 + 6) \text{ g} = 428 \text{ dag } 6 \text{ g}$
- f. Since, 1 g = 1000 mg
 $31962 \text{ mg} = (31000 + 962) \text{ mg}$
 $= (31 \times 1000 + 962) \text{ mg} = 31 \text{ g } 962 \text{ mg}$

Assessment Time 7.4

1. a.

	kg			g		
		1				
	5	3		7	8	2
+	7	4	9	1	6	
	1	2	8	6	9	8

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	5
+	1	6	8	8	1	6
	5	4	4	1	4	1

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	7
		3	2	2	1	8
+		7	8	3	1	4
	3	3	6	4	5	9

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	4	2
+	2	1	6	0	3	7
	1	1	3	2	0	7

So, 916 g 42 mg + 216 g 37 mg
= 1132 g 79 mg

e.

	g			mg		
	4	1	2	3	7	2
+	9	0	2	2	1	4
	1	3	1	4	5	6

So, 412 g 372 mg + 902 g 214 mg
= 1314 g 586 mg

f.

	g			mg		
		1	1		1	
	1	2	8	2	1	4
	3	0	2	9	1	6
+	6	8	5	1	2	
	4	9	9	6	4	2

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	2	9
-	9	8	3	7	8	
	3	0	2	5	1	

So, 128 kg 629 g - 98 kg 378 g
= 30 kg 251 g

b.

	kg			g		
		5	10	9	10	
	7	3	6	1	0	0
-	6	1	4	2	1	9
	1	2	1	8	8	1

So, 736 kg 100 g - 614 kg 219 g
= 121 kg 881 g

c.

	hg			g		
	0	9	9	12		
	1	0	0	2	8	
-	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			
	98	6	28			
–	83	8	14			
	14	8	14			

So, $98\text{ g } 628\text{ mg} - 83\text{ g } 814\text{ mg}$
 $= 14\text{ g } 814\text{ mg}$

e.

	g			mg		
			2	11		
	286	3	14			
–	143	1	43			
	143	1	71			

So, $286\text{ g } 314\text{ mg} - 143\text{ g } 143\text{ mg}$
 $= 143\text{ g } 171\text{ mg}$

f.

	g			mg		
	4	9	10	3	10	
	500	4	06			
–	427	3	74			
	73	0	32			

So, $200\text{ g } 406\text{ mg} - 427\text{ g } 374\text{ mg}$
 $= 73\text{ g } 032\text{ mg}$

Assessment Time 7.5

1. a. Litre b. mL c. 18523 L d. 52032 mL

2. a. Since, $1\text{ kL} = 1000\text{ L}$

$$8\text{ kL } 342\text{ L} = (8 \times 1000 + 342)\text{ L}$$

$$= (8000 + 342)\text{ L} = 8342\text{ L}$$

b. Since, $1\text{ kL} = 1000\text{ L}$

$$41\text{ kL } 106\text{ L} = (41 \times 1000 + 106)\text{ L}$$

$$= (41000 + 106)\text{ L} = 41106\text{ L}$$

c. Since, $1\text{ hL} = 100\text{ L}$

$$98\text{ hL } 58\text{ L} = (98 \times 100 + 58)\text{ L}$$

$$= (9800 + 58)\text{ L} = 9858\text{ L}$$

d. Since, $1\text{ hL} = 100\text{ L}$

$$138\text{ hL } 54\text{ L} = (138 \times 100 + 54)\text{ L}$$

$$= (13800 + 54)\text{ L} = 13854\text{ L}$$

e. Since, $1\text{ daL} = 10\text{ L}$

$$39\text{ daL } 3\text{ L} = (39 \times 10 + 3)\text{ L}$$

$$= (390 + 3)\text{ L} = 393\text{ L}$$

f. Since, 1 daL = 10 L

$$\begin{aligned}42 \text{ daL } 24 \text{ L} &= (42 \times 10 + 24) \text{ L} \\&= (420 + 24) \text{ L} = 444 \text{ L}\end{aligned}$$

3. a. Since, 1 L = 1000 mL

$$\begin{aligned}\text{So, } 34 \text{ L } 582 \text{ mL} &= (34 \times 1000 + 582) \text{ mL} \\&= (34000 + 582) \text{ mL} = 34582 \text{ mL}\end{aligned}$$

b. Since, 1 L = 1000 mL

$$\begin{aligned}\text{So, } 96 \text{ L } 128 \text{ mL} &= (96 \times 1000 + 128) \text{ mL} \\&= (96000 + 128) \text{ mL} = 96128 \text{ mL}\end{aligned}$$

c. Since, 1 dL = 100 mL

$$\begin{aligned}\text{So, } 137 \text{ dL } 46 \text{ mL} &= (137 \times 100 + 46) \text{ mL} \\&= (13700 + 46) \text{ mL} = 13746 \text{ mL}\end{aligned}$$

d. Since, 1 dL = 100 mL

$$\begin{aligned}\text{So, } 92 \text{ dL } 347 \text{ mL} &= (92 \times 100 + 347) \text{ mL} \\&= (9200 + 347) \text{ mL} = 9547 \text{ mL}\end{aligned}$$

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

$$51432 \text{ L} = (51 \times 1000 + 432) \text{ mL}$$

$$= (51000 + 432) \text{ mL} = 51 \text{ L } 432 \text{ mL}$$

f. Since, 1 L = 1000 mL

$$\text{So, } 814032 \text{ mL} = (814000 + 32) \text{ mL}$$

$$= (814 \times 1000 + 32) \text{ mL} = 814 \text{ L } 32 \text{ mL}$$

Assessment Time 7.6

1. a.

	kL		L	
	1	1	1	
	4	5	8	3 1 9
+	7	8	6	4 1 5
	1	2	4	7 3 4

$$\text{So, } 458 \text{ kL } 319 \text{ L} + 986 \text{ kL } 415 \text{ L} \\ = 1244 \text{ kL } 734 \text{ L}$$

b.

	kL		L	
	9	1	6	4 2 3
+	3	1	6	5 2 8
	1	2	3	2 9 5 1

$$\text{So, } 916 \text{ kL } 423 \text{ L} + 316 \text{ kL } 528 \text{ L} \\ = 1232 \text{ kL } 951 \text{ L}$$

c.

	kL		L	
		1		
	4	2	8	5
+	3	1	9	2
	7	4	7	7

$$\text{So, } 428 \text{ kL } 54 \text{ L} + 319 \text{ kL } 21 \text{ L} \\ = 747 \text{ kL } 75 \text{ L}$$

d.

	L			mL		
		1		1	1	
	3	2	6	4	1	9
+	1	1	8	3	9	6
	4	4	4	8	1	5

$$\text{So, } 326 \text{ L } 419 \text{ mL} + 118 \text{ L } 396 \text{ mL} \\ = 444 \text{ L } 815 \text{ mL}$$

e.

	L		mL	
		1		1
	4	0	6	3 0 8
+	5	1	9	1 2 8
	9	2	5	4 3 6

$$\text{So, } 406 \text{ L } 308 \text{ mL} + 519 \text{ L } 128 \text{ mL} \\ = 925 \text{ L } 436 \text{ mL}$$

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 429 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	8	6	6
-	1	6	8	5
	2	1	8	0

So, 386 dL 68 mL - 168 dL 59 mL
= 218 dL 9 mL

Assessment Time 7.7

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

$$= 98 \text{ kg } 384 \text{ g} + 54 \text{ kg } 694 \text{ g} + 38 \text{ kg } 186 \text{ g}$$

$$= 191 \text{ kg } 264 \text{ g}$$

Hence, the total weight of 3 bags is 191 kg 264 g.

	kg		g	
	98	384		
	54	694		
+	38	186		
	191	264		

2. Total water in a bucket = 32 L

More water add in it = 18 L 458 mL

Water is the bucket after addition

$$= 32 \text{ L} + 18 \text{ L } 458 \text{ mL}$$

$$= 50 \text{ L } 458 \text{ mL}$$

Hence, the water in bucket after addition is 50 L 458 mL.

	L		mL	
		1		
	32	000		
+	18	458		
	50	458		

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	99	99	10
	100	000		
–	5	318		
	94	682		

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	
	3	9	13	7
	40	380		
–	15	435		
	24	945		

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	395		
+	3	986		
	11	381		

	kg		g	
		7	12	17
	18	380		
–	11	381		
	06	999		

6. Milkman distributes milk in 8 persons = 84 L 384 mL

Each of them get milk = $84 \text{ L } 384 \text{ mL} \div 8$

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.

$$\begin{array}{r} 10548 \\ 8 \overline{) 84384} \\ \underline{-72} \\ 043 \\ \underline{-40} \\ 38 \\ \underline{-32} \\ 64 \\ \underline{-64} \\ 0 \end{array}$$

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 = $15 \text{ km } 856 \text{ m} \times 8$

km		m	
4	6	4	4
15	856		
×	8		
126	848		

Hence, the car can go 126 km 848 m with 8 L of diesel.

9. A glass contain juice = 365 mL

9 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
×	9
3295	

10. Weight of an empty cylinder = 15 kg 385 g
 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	
3	2	5	3
1	5	3	8
×		7	
1	0	7	6
		9	5

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-8 BASIC GEOMETRICAL CONCEPTS

Assessment Time 8.1

1. a. no b. two c. one d. no definite
2. Do yourself 3. Do yourself 4. 190 m

Assessment Time 8.2

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 8.3

1. a. quadrilateral b. equiangular
 c. closed d. scalene
2. a. Equilateral Triangle b. Scalene Triangle
 c. Isosceles 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 $20^\circ, 80^\circ, 80^\circ$.

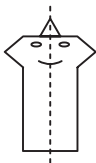
Multiple Choice Questions (MCQs)

1. (c) 2. (b) 3. (d) 4. (d) 5. (a)

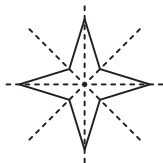
CHAPTER-9 : SYMMETRY (REFLECTION)

Assessment Time 9.1

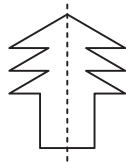
1. a.



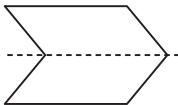
b.



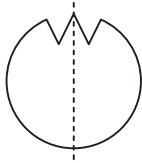
c.



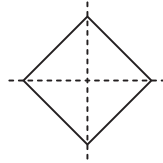
d.



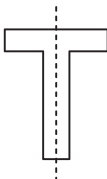
e.



f.



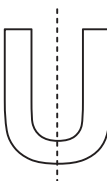
2. a.



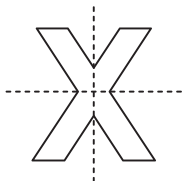
b. No

c. No

d.



e.



f. no

3. a. (iv) b. (v) c. (ii) d. (i) e. (iii)

4. Do yourself

Multiple Choice Questions (MCQs)

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

CHAPTER-10: 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 m

$$\text{Cost of fencing it} = ₹ (883 \times 7.85)$$

$$= ₹ 6931.55 \text{ m}$$

4. Perimeter of square = $4 \times \text{side}$

$$= 4 \times 385 = 1540 \text{ m}$$

$$\text{Cost of fencing it} = ₹ (1540 \times 9.80)$$

$$= ₹ 15092$$

5. Perimeter of rectangular garden = $2 \times (\text{length} + \text{breadth})$

$$= 2 \times (255 + 238)$$

$$= 2 \times 493 = 986 \text{ m}$$

$$\text{Distance covered in 1 round} = \text{Perimeter of garden}$$

$$\text{Distance covered in 8 round} = 8 \times 986$$

$$= 7888 \text{ m}$$

6. Perimeter of square park = $4 \times \text{side}$

$$= 4 \times 95 = 380 \text{ m}$$

$$\text{Perimeter of rectangular park} = 2 \times (\text{length} + \text{breadth})$$

$$= 2 \times (110 + 75)$$

$$= 2 \times 185 = 370 \text{ m}$$

$$\text{Manya cover more distance by } 10 \text{ m } (380 \text{ m} - 370)$$

7. Perimeter of rectangular park = $2 \times (\text{length} + \text{breadth})$

$$= 2 \times (40 + 30)$$

$$= 2 \times 70 = 140 \text{ m}$$

$$\text{Distance covered by him} = 10 \times \text{perimeter of rectangular park}$$

$$= 140 \times 10 = 1400 \text{ m}$$

8. Perimeter of regular hexagon = $6 \times \text{side}$

$$\text{Perimeter of two regular hexagon} = 11 \times 30 = 330 \text{ cm}$$

9. Let the breadth of rectangle be x

$$\text{Length} = 3 \times \text{breadth} = 3x$$

$$\text{Perimeter of rectangle} = 2 \times (\text{length} + \text{breadth})$$

$$40 = 2 \times (x + 3x)$$

$$40 = 2 \times (4x)$$

$$40 = 8x$$

$$x = 40 \div 8 = 5 \text{ cm}$$

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)

$$\begin{aligned}\text{Perimeter of park} &= 2 (L + B) \\ &= 2 (118 + 86) \\ &= 2 \times 204 = 408 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Distance covered in 8 round} &= 408 \times 8 = 3264 \text{ m} \\ &= 3.264 \text{ km}\end{aligned}$$

No, she does not achieve her target.

Assessment Time 10.2

$$\begin{aligned}1. \text{ a. Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 6 \times 5 = 30 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{b. Area of rectangle} &= \text{Length} \times \text{breadth} \\ &= 10 \times 5 = 50 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}2. \text{ Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 28 \times 15 = 420 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}3. \text{ Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 22 \times 13 = 286 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}4. \text{ Area of square} &= \text{side} \times \text{side} \\ &= 15 \times 15 = 225 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}5. \text{ Area of square park} &= 185 \times 185 \\ &= 34225 \text{ m}^2\end{aligned}$$

$$\begin{aligned}\text{Cost of square part at the rate of ₹ 1.50 per meter} \\ &= ₹ (34225 \times 1.50) = ₹ 51337.50\end{aligned}$$

$$\begin{aligned}6. \text{ Area of a rectangle} &= 2538 \text{ m}^2 \\ \text{Length} \times \text{breadth} &= 2538 \text{ m}^2 \\ 54 \times \text{breadth} &= 2538 \text{ m}^2\end{aligned}$$

$$\text{Breadth} = \frac{2538}{54} = 47 \text{ m}$$

$$\begin{aligned}\text{Perimeter of rectangle} &= 2 \times (\text{length} + \text{breadth}) \\ &= 2 \times (54 + 47) \\ &= 2 \times 101 = 202 \text{ m}\end{aligned}$$

$$\begin{aligned}7. \text{ Area of rectangular park} &= \text{length} \times \text{breadth} \\ 120 \text{ m} \times \text{breadth} &= 10308 \\ \text{breadth} &= \frac{10308}{120} = 85.9 \text{ m}\end{aligned}$$

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 $L = 17 \text{ cm}$, then $B = 1 \text{ cm}$
 $L = 16 \text{ cm}$, then $B = 2$
 $L = 15 \text{ cm}$, then $B = 3$
 $L = 14 \text{ cm}$, then $B = 4 \dots$ so on

Challenge

Perimeter of square = perimeter of rectangle

$$4 \times \text{side} = 2 (124 + 103)$$

$$\text{side} = \frac{2 \times 228}{4} = 114 \text{ m}$$

$$\text{So, area of square} = 114 \times 114 = 12996 \text{ m}^2$$

$$\text{Area of rectangular of field} = 125 \times 103 = 12875 \text{ m}^2$$

$$\text{So, area of square is more by } (12996 - 12875) = 121 \text{ m}^2$$

Subject Link

Side of square case = 300 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)

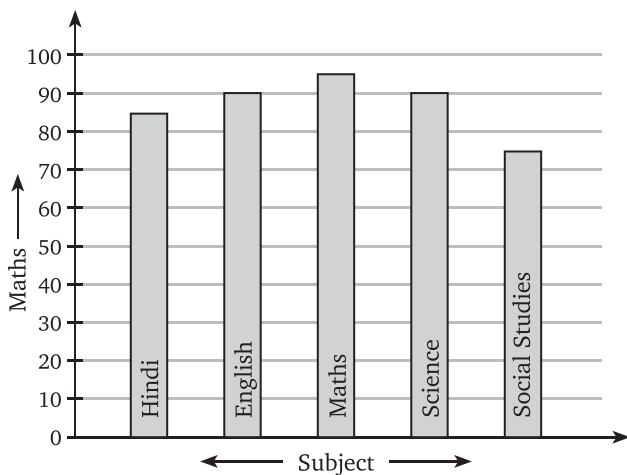
1. (c) 2. (b) 3. (b) 4. (c) 5. (d)
6. (a) 7. (a) 8. (b) 9. (a) 10. (d)

CHAPTER-11: DATA HANDLING**Assessment Time 11.1**

1. 1 Toy represents = 10 toys

Dolls	
Monkeys	
Train	
Jeeps	
Cars	

- 4.



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

$$\begin{array}{r} 342612 \\ + 102387 \\ \hline 444999 \end{array}$$

$$\begin{array}{r} 444999 \\ \hline \end{array}$$

$$\begin{array}{r} 444999 \\ \hline \end{array}$$

Now we subtract

$$\begin{array}{r} 6115121312 \\ \times 16342 \\ \hline \end{array}$$

$$\begin{array}{r} 444999 \\ - 444999 \\ \hline \end{array}$$

$$\begin{array}{r} 271343 \\ \hline \end{array}$$

b. Sum of Positive numbers

$$\begin{array}{r} 442168 \\ + 106897 \\ \hline 549065 \end{array}$$

$$\begin{array}{r} 549065 \\ \hline \end{array}$$

$$\begin{array}{r} 549065 \\ \hline \end{array}$$

Sum of Negative numbers

$$\begin{array}{r} 206342 \\ + 85916 \\ \hline 292258 \end{array}$$

$$\begin{array}{r} 292258 \\ \hline \end{array}$$

$$\begin{array}{r} 292258 \\ \hline \end{array}$$

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

$$\begin{array}{r} \textcircled{2} \textcircled{1} \quad \textcircled{2} \\ 315218 \\ 109638 \\ + 55345 \\ \hline 484201 \end{array}$$

Now, we subtract
484201 from 638916

$$\begin{array}{r} \textcircled{5} \textcircled{13} \\ 638916 \\ - 484201 \\ \hline 154715 \end{array}$$

d. Sum of
Positive numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \quad \textcircled{1} \\ 328514 \\ + 238576 \\ \hline 567090 \end{array}$$

Sum of
Negative numbers

$$\begin{array}{r} \textcircled{1} \textcircled{1} \quad \textcircled{1} \\ 108916 \\ + 782916 \\ \hline 891832 \end{array}$$

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

3. Number of pages machine can print in a month = 2,64,718
 Number of pages machine can print in 366 month =

$$= 2,64,718 \times 366$$

		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 = 5×7
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

Factors of 50 = $2 \times 5 \times 5$

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

Factors of 80 = $2 \times 2 \times 2 \times 2 \times 5$

Common factors 2, 5

So, HCF of 50, 60 and 80 = $2 \times 5 = 10$

f. 15, 25 and 40

Factors of 15 = 3×5

Factors of 25 = 5×5

Factors of 40 = $2 \times 2 \times 2 \times 5$

Common factor = 5

So, HCF of 15, 25 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 1105

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. 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.

- 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. $15 \text{ km} = \mathbf{15000 \text{ m}}$.

2. a. $1 \text{ m} = 100 \text{ cm}$

$$\begin{aligned} 9 \text{ m } 37 \text{ cm} &= (9 \times 100 + 37) \text{ cm} \\ &= (900 + 37) \text{ cm} = 937 \text{ cm} \end{aligned}$$

- b. $1 \text{ m} = 1000 \text{ mm}$

$$\begin{aligned} 18 \text{ m } 416 \text{ mm} &= (18 \times 1000 + 416) \text{ mm} \\ &= 18416 \text{ mm} \end{aligned}$$

- c. $1 \text{ cm} = 10 \text{ mm}$

$$\begin{aligned} 72 \text{ cm } 5 \text{ mm} &= (72 \times 10 + 5) \text{ mm} \\ &= (720 + 5) \text{ mm} = 725 \text{ mm} \end{aligned}$$

3. a. $55 \text{ m } 63 \text{ cm}$ by 9

	m	cm
	5	5
	5	2
	5	5
	6	3
	×	9
	5	0
	0	6
	7	

$$= 500 \text{ m } 67 \text{ cm}$$

- b. $372 \text{ km } 56 \text{ m}$ by 7

km	m
3	7
2	0
5	6
×	7
2	6
0	4
3	9
2	

$$= 2604 \text{ km } 392 \text{ m}$$

- | cm | mm |
|-----|----|
| 24 | 6 |
| × | 8 |
| 196 | 8 |

$$24 \text{ cm } 6 \text{ mm} \times 8 = 196 \text{ cm } 8 \text{ mm}$$

- $$1 \text{ m} = 100 \text{ cm}$$

$$\begin{aligned} 506 \text{ m } 8 \text{ cm} &= (506 \times 100 + 8) \text{ cm} \\ &= 50608 \text{ cm} \end{aligned}$$

$$50608 \text{ cm} \div 8 = 6326 \text{ cm}$$

$$6326 \text{ cm} = (6300 + 26) \text{ cm}$$

$$= (63 \times 100 + 26) \text{ cm} = 63 \text{ m } 26 \text{ cm}$$

So, $506 \text{ m } 8 \text{ cm} \div 8 = 63 \text{ m } 26 \text{ cm}$

$$\begin{array}{r} 6326 \\ 8 \overline{) 50608} \\ \underline{-48} \\ 26 \\ \underline{-24} \\ 20 \\ \underline{-16} \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

- Since $1 \text{ cm} = 10 \text{ mm}$

$$\begin{aligned} 84 \text{ cm } 8 \text{ m} &= (84 \times 10 + 8) \text{ mm} \\ &= (840 + 8) \text{ mm} = 848 \text{ mm} \end{aligned}$$

$$848 \text{ mm} \div 4 = 212 \text{ mm}$$

$$212 \text{ mm} = 21 \text{ cm } 2 \text{ mm}$$

$$\begin{array}{r} 212 \\ 4 \overline{) 848} \\ \underline{-8} \\ 04 \\ \underline{-4} \\ 08 \\ \underline{-8} \\ 0 \end{array}$$

- $$= (140 \times 100 + 56) \text{ m}$$

$$= (14000 + 56) \text{ m} = 14056 \text{ m}$$

$$14056 \text{ m} \div 4 = 3514 \text{ m}$$

$$3514 \text{ m} = (3500 + 14) \text{ m}$$

$$= (35 \times 100 + 14) \text{ m}$$

$$= 35 \text{ hm } 14 \text{ m}$$

$$140 \text{ hm } 56 \text{ m} \div 4 = 35 \text{ hm } 14 \text{ m}$$

$$\begin{array}{r} 3514 \\ 4 \overline{) 14056} \\ \underline{-12} \\ 20 \\ \underline{-20} \\ 05 \\ \underline{-4} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

5. a. 458 kL 319 L and 786 kL 415 L

	kL			L		
		1	1		1	
	4	5	8	3	1	9
+	7	8	6	4	1	5
	1	2	4	7	3	4

So, 458 kL 319 L + 786 kL 415 L
= 1244 kL 734 L

b. 51 dL 34 mL and 68 dL 54 mL

	dL			mL		
	5	1		3	4	
+	6	8		5	4	
	1	1	9	8	8	

So, 51 dL 34 mL + 68 dL 54 mL
= 119 dL 88 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

Cost of fencing it with wire = ₹ (883 × 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 × breadth

= 22 × 13

= 286 cm²

Hence, the area of rectangle 286 cm².

3. Side of a square = $\frac{1}{2}$

Area of a square = side × side

= $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

Hence, the area of square is one-fourth.