

CBR MODERN SR.SEC.SCHOOL BAHALA **Math-4**TH CLASS SOLUTION PDF

1. Revision

1. to 4. As per answersheet.

5. Place value of each digit in 4692. Place value of each digit in **3865**.

$$\begin{array}{r}
 4 \ 6 \ 9 \ 2 \\
 \left. \begin{array}{l} | \\ | \\ | \\ | \end{array} \right\} \begin{array}{l} 2 \times 1 = 2 \\ 9 \times 10 = \mathbf{90} \\ 6 \times 100 = \mathbf{600} \\ 4 \times 1000 = \mathbf{4000} \end{array}
 \end{array}$$

$$\begin{array}{r}
 3 \ 8 \ 6 \ 5 \\
 \left. \begin{array}{l} | \\ | \\ | \\ | \end{array} \right\} \begin{array}{l} 5 \times 1 = 5 \\ 6 \times 10 = \mathbf{60} \\ 8 \times 100 = \mathbf{800} \\ 3 \times 1000 = \mathbf{3000} \end{array}
 \end{array}$$

6. As per answersheet.

7. We know that for making smallest number using the given digits (2, 0, 1, 5). We arrange the given digits in ascending order but we cannot put 0 at the left most place.

Smallest number = **1025**.

For making greatest number using the given digits. We arrange the given digits in descending order.

Greatest number = **5210**.

8. and 9. As per answersheet.

10. (a) We know that the number having more number of digits is greater. So we arrange the numbers according to their digits.

$$6 < 96 < 420 < 1998 < 4789$$

(b) Similarly by comparing numbers their ascending order is

$$8 < 88 < 888 < 8088$$

(c) Similarly, $5 < 20 < 777 < 4000 < 9658$

11. (a) We know that the number having less number of digits is smaller. So we arrange the numbers in descending order according to their number of digits.

$$9999 > 666 > 80 > 7$$

(b) Similarly, $1023 > 345 > 95 > 9$

(c) Similarly, $2000 > 1765 > 999 > 10 > 8$

12. As per answersheet.

13. (a) $16 : 16 + 7 = \mathbf{23}; 23 + 7 = \mathbf{30}; 30 + 7 = \mathbf{37}; 37 + 7 = \mathbf{44};$
 $44 + 7 = \mathbf{51}; 51 + 7 = \mathbf{58}; 58 + 7 = \mathbf{65}$

(b) $165 : 165 + 15 = \mathbf{180}; 180 + 15 = \mathbf{195}; 195 + 15 = \mathbf{210}$ $210 + 15 = \mathbf{225}; 225 + 15 = \mathbf{240}; 240 + 15 = \mathbf{255}; 255 + 15 = \mathbf{270}$

(c) $1050 : 1050 + 50 = \mathbf{1100}; 1100 + 50 = \mathbf{1150}; 1150 + 50 = \mathbf{1200};$
 $1200 + 50 = \mathbf{1250}; 1250 + 50 = \mathbf{1300}; 1300 + 50 = \mathbf{1350};$
 $1650 + 50 = \mathbf{1400}$

- (d) $9050 : 9050 + 40 = 9090$; $9090 + 40 = 9130$; $9130 + 40 = 9170$;
 $9170 + 40 = 9210$; $9210 + 40 = 9250$; $9250 + 40 = 9290$;
 $9290 + 40 = 9330$

14. (a)
$$\begin{array}{r} \text{₹} \quad \text{P} \\ \boxed{1}\boxed{1}\boxed{1} \quad \boxed{1} \\ 132 \quad 25 \\ 478 \quad 95 \\ +101 \quad 50 \\ \hline 712 \quad 70 \end{array}$$

(b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ \boxed{4}\boxed{2}\boxed{0} \quad \boxed{7}\boxed{5} \\ 78 \quad 50 \\ +9 \quad 20 \\ \hline 508 \quad 45 \end{array}$$

(c)
$$\begin{array}{r} \text{kg} \quad \text{g} \\ \boxed{2}\boxed{1}\boxed{3} \quad \boxed{2}\boxed{6} \\ 78 \quad 789 \\ +134 \quad 650 \\ \hline 234 \quad 765 \end{array}$$

(d)
$$\begin{array}{r} \text{l} \quad \text{ml} \\ \boxed{1}\boxed{2} \quad \boxed{4}\boxed{5} \\ 367 \quad 897 \\ +496 \quad 65 \\ \hline 876 \quad 418 \end{array}$$

15. (a)
$$\begin{array}{r} \text{₹} \quad \text{P} \\ \boxed{2}\boxed{1}\boxed{5} \quad \boxed{1}\boxed{7} \quad \boxed{1}\boxed{2} \\ \cancel{8} \quad \cancel{8} \quad \cancel{8} \quad \cancel{2} \quad 5 \\ -199 \quad 75 \\ \hline 168 \quad 50 \end{array}$$

(b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ \boxed{6}\boxed{1} \quad \boxed{1}\boxed{1} \quad \boxed{7} \\ \cancel{7} \quad \cancel{2} \quad \cancel{2} \quad \cancel{7} \\ -2958 \\ \hline 4269 \end{array}$$

(c)
$$\begin{array}{r} \text{kg} \quad \text{g} \\ \boxed{5}\boxed{9}\boxed{1}\boxed{2} \quad \boxed{4}\boxed{9}\boxed{1}\boxed{0} \\ \cancel{8} \quad \cancel{8} \quad \cancel{2} \quad \cancel{5} \quad \cancel{8} \quad 0 \\ -123175 \\ \hline 479325 \end{array}$$

(d)
$$\begin{array}{r} \text{l} \quad \text{ml} \\ \boxed{1}\boxed{9}\boxed{1}\boxed{5} \quad \boxed{1}\boxed{4}\boxed{6}\boxed{1}\boxed{0} \\ \cancel{2} \quad \cancel{8} \quad \cancel{6} \quad \cancel{4} \quad \cancel{7} \quad 0 \\ -98518 \\ \hline 107952 \end{array}$$

16. (a)
$$\begin{array}{r} \text{₹} \quad \text{p} \\ 123 \quad 50 \\ \times 8 \\ \hline 988 \quad 00 \end{array}$$

(b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 3 \quad 79 \\ \times 2 \\ \hline 758 \end{array}$$

(c)
$$\begin{array}{r} \text{kg} \quad \text{g} \\ 7 \quad 500 \\ \times 4 \\ \hline 30000 \end{array}$$

(d)
$$\begin{array}{r} \text{l} \quad \text{ml} \\ 3 \quad 800 \\ \times 2 \\ \hline 7600 \end{array}$$

17. (a)
$$\begin{array}{r} \text{₹} \quad \text{P} \\ 6 \overline{) 36 \ 60} (610 \\ \underline{-36} \quad \downarrow \\ \quad 6 \\ \underline{-6} \\ \quad \quad 0 \end{array}$$

 ₹ 6 p 10

(b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 4 \overline{) 80 \ 40} (2010 \\ \underline{-8} \quad \downarrow \quad \downarrow \\ \quad 0 \quad 4 \\ \underline{-4} \\ \quad \quad 0 \end{array}$$

 20 m 10 cm

$$\begin{array}{r}
 \text{kg} \quad \text{g} \\
 9 \overline{)882 \quad 630} (98070 \\
 \underline{-81} \downarrow \quad \downarrow \downarrow \\
 72 \quad \downarrow \downarrow \\
 \underline{-72} \quad \downarrow \downarrow \\
 63 \\
 \underline{-63} \\
 0
 \end{array}$$

98 kg 070 g

$$\begin{array}{r}
 \text{l} \quad \text{ml} \\
 5 \overline{)250 \quad 500} (50 \quad 100 \\
 \underline{-25} \quad \downarrow \\
 5 \\
 \underline{-5} \\
 0
 \end{array}$$

50 l 100 ml

18. to 22. As per answersheet.

23. (a) We know that if denominator are same so we compare the numerators. We know that the fraction with greater numerator will be greater.

Here in $\frac{3}{7}$ and $\frac{4}{7}$.

$\therefore 3 < 4$

So, $\frac{3}{7} < \frac{4}{7}$.

(b) $11 > 9$

(c) $11 < 13$

24. As per answersheet.

25. Devesh earns = ₹ 2600 per month.

Rahul earns = ₹ 240.75 less than Devesh

$$= ₹ 2600 - 240.75$$

$$= ₹ 2359.25$$

Their total monthly income = ₹ 2600 + ₹ 2359.25 = ₹ 4959.25

26. Raman weight = 62 kg 560 g

Raman's wife weight = 42 kg 400 g

$\therefore 62 \text{ kg} > 42 \text{ kg}$

So Raman is heavier.

$$\begin{array}{r}
 \text{kg} \quad \text{g} \\
 62 \quad 560 \\
 \underline{-42 \quad 400} \\
 20 \quad 160
 \end{array}$$

Thus, Raman is heavier than his wife by 20 kg 160 g.

27. (a) 1 m = 100 cm

$$14 \text{ m } 15 \text{ cm}$$

$$14 \quad 100 \quad 15 \text{ cm}$$

$$= 1415 \text{ cm}$$

(b) $\therefore 1 \text{ m} = 100 \text{ cm}$

$$28 \text{ m } 53 \text{ cm}$$

$$= 28 \times 100 + 50$$

$$= 2853 \text{ cm}$$

(c) $\therefore 1 \text{ m} = 100 \text{ cm}$

$$84 \text{ m} = 84 \times 100 \text{ cm}$$

$$= 8400 \text{ cm}$$

28. (a) $\because 1 \text{ kg} = 1000 \text{ g}$
 $3 \text{ kg } 250 \text{ g}$
 $= 3 \times 1000 + 250 \text{ g}$
 $= 3250 \text{ g}$
- (b) $\because 1 \text{ kg} = 1000 \text{ g}$
 $4 \text{ kg } 350 \text{ g}$
 $= 4 \times 1000 + 350 \text{ g}$
 $= 4350 \text{ g}$
- (c) $\because 1 \text{ kg} = 1000 \text{ g}$
 $8 \text{ kg } 50 \text{ g} = 8 \times 1000 + 50 \text{ g} = 8050 \text{ g}$
29. (a) $\because 1 \text{ hour} = 60 \text{ min}$
 $9 \text{ hours } 40 \text{ min}$
 $= 9 \times 60 + 40 \text{ min}$
 $= 580 \text{ min}$
- (b) $\because 1 \text{ hour} = 60 \text{ min}$
 $8 \text{ hours } 16 \text{ min}$
 $= 8 \times 60 + 16 \text{ min}$
 $= 496 \text{ min}$
- (c) $\because 1 \text{ hour} = 60 \text{ min}$
 $15 \text{ hours} = 15 \times 60 \text{ min} = 900 \text{ min}$
30. \because Factory produces bulbs in 8 days = 480
 Factory produces bulbs in 1 day $\frac{480}{8}$
 Factory will produce bulbs in 10 days = 60×10
 $= 600$
- Thus, factory will produce 600 bulbs in 10 days at the same rate.
31. (a) Mohan got a total of = $89 + 86 + 69 + 71 + 64 = 379$
 (b) \because 89 is the maximum marks Mohan got in **Maths**.
 (c) \because 64 is the least marks Mohan got in **English**.
 (d) Mohan obtained total marks of Maths and Science
 $= 89 + 86 = 175$
 (e) Mohan obtained total marks in English, Social Science and Hindi = $64 + 69 + 71 = 204$

2. Roman Numerals

Exercise-2

1. (a) Roman number we represent
 $1 = \text{I}, 5 = \text{V}, 10 = \text{X}, 50 = \text{L}, 100 = \text{C}, 500 = \text{D}, 1000 = \text{M}$
 $27 = 10 + 10 + 5 + 1 + 1 = \text{X} + \text{X} + \text{V} + \text{I} + \text{I} = \text{XXVII}$
- (b) 40 : We represent $\text{L} = 50, \text{X} = 10$
 $40 = 50 - 10 = 40 = \text{XL}$
- (c) $29 = 10 + 10 + 9 = \text{X} + \text{X} + \text{IX} = \text{XXIX}$
- (d) $92 = 90 + 2 [(100 - 10) + 2] = \text{XC} + \text{II} = \text{XCII}$
- (e) $39 = 10 + 10 + 10 + 9 = \text{X} + \text{X} + \text{X} + \text{IX} = \text{XXXIX}$
- (f) $47 = 40 + 7 [(50 - 10) + 7] = \text{XL} + \text{VII} = \text{XLVII}$

2. (a) $XIV = X + IV = 10 + 4 = 14$
 (b) $LXIX = L + X + IX = 50 + 10 + 9 = 69$
 (c) $XXXV = X + X + X + V = 10 + 10 + 10 + 5 = 35$
 (d) $LIII = L + I + I + I = 50 + 1 + 1 + 1 = 53$
 (e) $LXXXIII = L + X + X + X + I + I + I$
 $= 50 + 10 + 10 + 10 + 1 + 1 + 1 = 83$
 (f) $LXXV = L + X + X + V = 50 + 10 + 10 + 5 = 75$
3. (a) 6 : Because $V = 5, I = 1$ VI
 (b) 11 : $X = 10, I = 1$ XI
 (c) 10 : $X = 10$ X
 (d) 55 : $L = 50, V = 5$ LV
 (e) 4 : $IV = (5 - 1) = 4$ IV
 (f) 93 : $L = 50, XL = 40, III = 3$ LXLIII
4. As per answersheet.
5. (a) $XX = 10 + 10 = 20$
 $LXXIII = 50 + 10 + 10 + 1 + 1 + 1 = 73$
 $LXXXIX = 50 + 10 + 10 + 10 + 9 = 89$
 $LXXI = 50 + 10 + 10 + 1 = 71$
 $XXXVIII = 10 + 10 + 10 + 5 + 1 + 1 + 1 = 38$
 20, 38, 71, 73, 89
- (b) $XL = 50 - 10 = 40$
 $XXI = 10 + 10 + 1 = 21$
 $XLIX = (50 - 10 = 40) \quad 40 + 9 = 49$
 $LXX = 50 + 10 + 10 = 70$
 $LXXI = 50 + 10 + 10 + 1 = 71$
 21, 40, 49, 70, 71
- (c) $XLI = (50 - 10 = 40) \quad 40 + 1 = 41$
 $XXX = 10 + 10 + 10 = 30$
 $LXXXVII = 50 + 10 + 10 + 10 + 5 + 1 + 1 = 87$
 $LXX = 50 + 10 + 10 = 70$
 $XL = (50 - 10) = 40$
 30, 40, 41, 70, 87
- (d) $XCI = (100 - 10 = 90) \quad 90 + 1 = 91$
 $LXXV = 50 + 10 + 10 + 5 = 75$
 $XXXII = 10 + 10 + 10 + 1 + 1 = 32$
 $LXXXIII = 50 + 10 + 10 + 10 + 1 + 1 + 1 = 83$
 $LXIV = 50 + 10 + (5 - 1 = 4) = 64$
 32, 64, 75, 83, 91

(e) $XC = 100 - 10 = 90$
 $XCVI = (100 - 10 = 90) \quad 90 + 6 = 96$
 $LXXX = 50 + 10 + 10 + 10 = 80$
 $XXXIV = 10 + 10 + 10 + 4 = 34$
 $LXII = 50 + 10 + 1 + 1 = 62$
 34, 62, 80, 90, 96

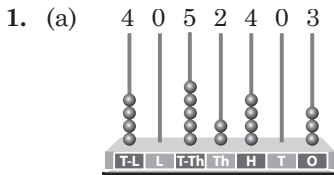
6. As per answersheet.
 7. (a) $XXX - XXIV = 30 - 24 = 6 = VI$
 (b) $L - XL = 50 - 40 = 10 = X$
 (c) $XLIV + XI = 44 + 11 = 55 = LV$
 (d) $XLI + IX = 41 + 9 = 50 = L$
 (e) $XC + XL = 90 + 40 = 130 = CXXX$
 (f) $L - XV = 50 - 15 = 35 = XXXV$

CHECK YOURSELF

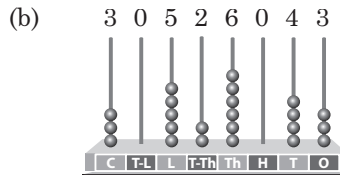
1. to 4. As per answersheet.

3. Large Numbers

Exercise-3.1

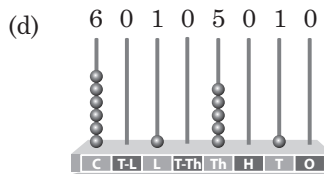
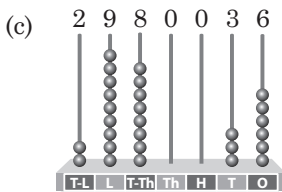
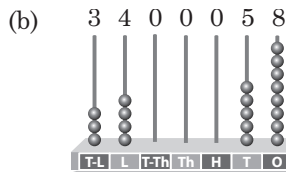
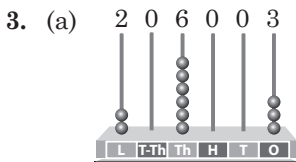


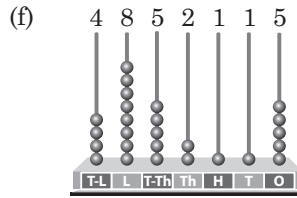
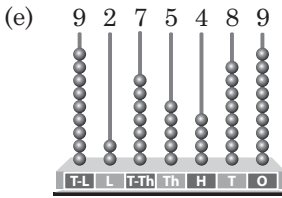
Forty lakh fifty-two thousand four hundred three.



Three crore five lakh twenty-six thousand forty three.

2. As per answersheet.





4. and 5. : As per answersheet.

6. (a)

Millions period			Thousand period			Ones period		
H-M	T-M	M	H-Th	T-Th	Th	H	T	O
2	1	7	2	9	5	2	1	0

Now reading from the left the numbers 217 million 295 thousand 210. In words, two hundred seventeen million two hundred ninety five thousand two hundred ten.

(b) to (f) solve as question (a).

7. As per answersheet.

8.

	T-C	C	T-L	L	T-Th	Th	H	T	O
(a)	1	2	0	5	0	0	0	1	3
(b)	0	4	0	1	0	1	7	0	0
(c)	0	0	8	3	3	5	0	1	3
(d)	4	6	5	1	9	0	3	1	1
(e)	0	1	0	5	0	5	5	0	5

9. and 10. As per answersheet.

Exercise-3.2

1. (a) Place value of a digit is the numerical value that digit has by virtue of its position in a number.

Here in 431076843

T-C	C	T-L	L	T-Th	Th	H	T	O
4	3	1	0	7	6	8	4	3

8 is at hundreds place.

So, the place value of 8 in 431076843 $8 \times 100 = 800$

(b) Similarly, In 856341079

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

8 is at ten-crores place.

So, the place value of 8 in 856341079

$$8 \times 1,00,00,000 = 8,00,00,000$$

(c) In, 759860113

T-C	C	T-L	L	T-Th	Th	H	T	O
7	5	9	8	6	0	1	1	3

8 is at lakhs place.

So, the place value of 8 in 759860113 $8 \times 1,00,000 = 8,00,000$

2. (a) In 26189

6 is at thousand place

So, the place value of 6 in 26189

$$= 6 \times 1,000 = 6,000$$

T-Th	Th	H	T	O
2	6	1	8	9

The face value of digit in a number is the value of digit itself.

So, face value of 6 in 26189 = 6.

(b) Similarly, in 879102

9 is at thousands place.

So, the place value of 9 in 879102

$$= 9 \times 1,000 = 9,000$$

The face value of 9 in 879102 = 9.

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

(c) In 1456800

8 is at hundreds place.

So, the place value of 8 in

$$1456800 = 8 \times 100 = 800$$

The face value of 8 in 1456800 = 8

T-L	L	T-Th	Th	H	T	O
1	4	5	6	8	0	0

(d) In 400007

7 is at ones place

So, the place value of 7 in 400007

$$= 7 \times 1 = 7$$

The face value of 7 in 400007 = 7

L	T-Th	Th	H	T	O
4	0	0	0	0	7

(e) In 789067

7 is at lakhs place.

So the place value of 7 in 789067

$$= 7 \times 1,00,000 = 7,00,000$$

The face value of 7 in 789067 = 7.

L	T-Th	Th	H	T	O
7	8	9	0	6	7

(f) In 9670315

3 is at hundreds place.

So, the place value of 3 in

$$9670315 = 3 \times 100 = 300$$

The face value of 3 in 9670315 = 3.

T-L	L	T-Th	Th	H	T	O
9	6	7	0	3	1	5

(g) In 548372

7 is at tens place.

So, the place value of 7 in 548372

$$= 7 \times 10 = 70$$

The face value of 7 in 548372 = 7

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

(h) In 632354

2 is at thousands place.

So, the place value of 2 in 632354

$$= 2 \times 1,000 = 2000$$

L	T-Th	Th	H	T	O
6	3	2	3	5	4

3.

Number	Crores		Lakhs		Thousands		Ones		
	T-C	C	T-L	L	T-Th	Th	H	T	O
(a) 678453				6	7	8	4	5	3
(b) 5380049			5	3	8	0	0	4	9
(c) 43000895		4	3	0	0	0	8	9	5
(d) 6050308			6	0	5	0	3	0	8

4. We know that the place values of all the digits of a number joined with plus signs are called its expanded form.

(a) Expanded form of 451397

$$4 \times 100000 + 5 \times 10000 + 1 \times 1000 + 3 \times 100 + 9 \times 10 + 7 \times 1$$

$$\text{So, expanded form} = 4,00,000 + 50,000 + 1,000 + 300 + 90 + 7$$

(b) Expanded form of 3748961

$$3 \times 1000000 + 7 \times 100000 + 4 \times 10000 + 8 \times 1000 +$$

$$9 \times 100 + 6 \times 10 + 1 \times 1$$

$$30,00,000 + 7,00,000 + 40,000 + 8,000 + 900 + 60 + 1$$

(c) Expanded form of 4797658

$$4 \times 1000000 + 7 \times 100000 + 9 \times 10000 + 7 \times 1000 + 6 \times 100$$

$$5 \times 10 + 8 \times 1$$

$$40,00,000 + 7,00,000 + 90,000 + 7,000 + 600 + 50 + 8$$

(d) Expanded form of 2459763

$$2 \times 1000000 + 4 \times 100000 + 5 \times 10000 + 9 \times 1000 + 7 \times 100$$

$$6 \times 10 + 3 \times 1$$

$$20,00,000 + 4,00,000 + 50,000 + 9,000 + 700 + 60 + 3$$

5. As per answersheet.

6. We know that the number coming just after a given number is called the successor of the given number.

So, we can find the successor by adding 1 to the given number.

Number	+1	Successor
(a) 823564	$823564 + 1$	823565
(b) 3082937	$3082937 + 1$	3082938
(c) 50999	$50999 + 1$	51000
(d) 8540769	$8540769 + 1$	8540770

7. We know that the number coming just before a given number is called the predecessor of the given number.

So, we can find the predecessor by subtracting 1 from the given number.

Number	-1	Predecessor
(a) 900988	$900988 - 1$	900987
(b) 7000000	$7000000 - 1$	6999999
(c) 8631919	$8631919 - 1$	8631918
(d) 9849275	$9849275 - 1$	9849274

8. (a) **21362**, $21362 + 10,000 = 31362$, $31362 + 10,000 = 41362$
 So, $41362 + 10,000 = 51362$, $51362 + 10,000 = 61362$,
 $61362 + 10,000 = 71362$
- (b) **16508**, $16508 + 300 = 16808$, $16808 + 300 = 17108$
 So, $17108 + 300 = 17408$, $17408 + 300 = 17708$,
 $17708 + 300 = 18008$
- (c) **52604**, $52604 + 1000 = 53604$, $53604 + 1000 = 54604$
 So, $54604 + 1000 = 55604$, $55604 + 1000 = 56604$,
 $56604 + 1000 = 57604$
- (d) **92586**, $92586 + 100 = 92686$, $92686 + 100 = 92786$
 So, $92786 + 100 = 92886$, $92886 + 100 = 92986$
 $92986 + 100 = 93086$

Exercise 3.3

1. (a) We compare the numbers by the place value chart.
 $\therefore 5 \text{ thousands} > 1 \text{ thousands}$
 $5467 > 1998$
- (b) $\therefore 9 \text{ thousands} > 8 \text{ thousands}$
 $9999 > 8999$

- (c) Digits at the ten-thousands, thousands and hundreds places are equal. So we will compare the digits at tens place.
 $\therefore 5 \text{ tens} > 0 \text{ ones}$
 $83750 > 83700$
- (d) $\therefore 9 \text{ lakhs} > 8 \text{ lakhs}$
 $900134 > 897654$
- (e) Digits at ten-lakhs, lakhs, ten-thousands and thousands places are equal. So we will compare the digits at hundreds place.
 $\therefore 2 < 4$
 $1643287 < 1643478$
- (f) $\therefore 30 \text{ lakhs} < 36 \text{ lakhs}$
 $3098654 < 3654213$
2. (a) To form the greatest number using the given digits we arrange the given digits in descending order.
 5, 6, 9, 0, 3, 7
 Descending order of digits = 976530
 So the greatest number formed by given digits = 976530
- (b) To form smallest number using the given digits we arrange them in ascending order but we cannot put 0 in left most place.
 8, 7, 2, 6, 1, 9
 Ascending order of digits = 126789
 So, the smallest number formed by given digits = 126789
- (c) Similar to Q. b
 5, 6, 7, 1, 8
 Ascending order of digits = 15678
 So, the smallest number formed by given digits = 15678

3. Similar to Q. 2

4. (a)

T-Th	Th	H	T	O
2	0	9	9	3
2	0	9	9	9
2	9	0	0	3
2	3	9	0	2

By comparison we find that

$$29003 > 23902 > 20999 > 20993$$

So the ascending order of the numbers is

$$20993 < 20999 < 23902 < 29003$$

(b)

T-Th	Th	H	T	O
9	1	1	0	6
6	1	1	0	7
7	6	7	9	9
7	1	1	0	9

By comparison ascending order of the numbers is

$$61107 < 71109 < 76799 < 91106$$

(c)

L	T-Th	Th	H	T	O
1	3	2	0	0	2
1	0	2	1	0	1
1	2	0	3	1	1
1	2	2	3	1	1

By comparison ascending order of the given numbers are

$$102101 < 120311 < 122311 < 132002$$

5. (a) Similar to Q. 4.

T-Th	Th	H	T	O
5	4	3	1	1
1	1	5	4	3
4	3	1	5	5
4	3	1	2	5

By comparison descending order of the numbers is

$$54311 > 43155 > 43125 > 11543$$

(b)

T-Th	Th	H	T	O
8	2	3	1	0
1	8	0	8	6
2	8	2	3	8
2	2	3	8	8

By comparison descending order of the numbers is

$$82310 > 28238 > 22388 > 18086$$

(c)

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

By comparison the descending order of the numbers is

$$962033 > 323216 > 69023 > 6242$$

CHECK YOURSELF.

1. to 4. As per answersheet.

4. Addition

Exercise 4.1

1. (a)

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

Step 1 : Add ones $1 + 3 = 4$ ones

Step 2 : Add tens $2 + 5 = 7$ tens

Step 3 : Add hundreds $3 + 6 = 9$ hundreds

Step 4 : Add thousands $6 + 2 = 8$ thousands

Step 5 : Add ten-thousands $4 + 4 =$

8 ten-thousands

- (b) Similarly,
$$\begin{array}{r} \text{T-Th Th H T O} \\ 1\ 3\ 2\ 4\ 5 \\ + 7\ 6\ 6\ 5\ 3 \\ \hline 8\ 9\ 8\ 9\ 8 \end{array}$$
- (c)
$$\begin{array}{r} \text{T-Th Th H T O} \\ 6\ 3\ 2\ 5\ 6 \\ + 1\ 4\ 5\ 0\ 2 \\ \hline 7\ 7\ 7\ 5\ 8 \end{array}$$
2. (a)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 4\ 3\ 2\ 0\ 1\ 0 \\ 1\ 2\ 3\ 5\ 2\ 3 \\ + 2\ 1\ 3\ 4\ 4 \\ \hline 5\ 7\ 6\ 8\ 7\ 7 \end{array}$$
- (b)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 4\ 0\ 4\ 0\ 0\ 2 \\ 2\ 2\ 3\ 5\ 3 \\ + 3\ 1\ 0\ 2\ 3 \\ \hline 4\ 5\ 7\ 3\ 7\ 8 \end{array}$$
- (c)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 5\ 4\ 0\ 3\ 4\ 2 \\ 1\ 3\ 0\ 5\ 6 \\ + 3\ 2\ 4\ 3\ 0\ 1 \\ \hline 8\ 7\ 7\ 6\ 9\ 9 \end{array}$$
- (d)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 3\ 2\ 1\ 0\ 1\ 4 \\ 1\ 3\ 2\ 5\ 6\ 3 \\ 2\ 0\ 3\ 1\ 0\ 0 \\ + 1\ 2\ 0\ 2\ 1 \\ \hline 6\ 6\ 8\ 6\ 9\ 8 \end{array}$$
- (e)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 1\ 3\ 1\ 0\ 3\ 1 \\ 4\ 2\ 0\ 3\ 2\ 0 \\ 2\ 0\ 3\ 2\ 0\ 5 \\ + 1\ 3\ 2\ 1\ 3\ 2 \\ \hline 8\ 8\ 6\ 6\ 8\ 8 \end{array}$$
- (f)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 2\ 3\ 0\ 1\ 4\ 3 \\ 1\ 0\ 2\ 0\ 1\ 0 \\ 3\ 1\ 4\ 0\ 2 \\ + 3\ 2\ 5\ 2\ 3\ 2 \\ \hline 6\ 8\ 8\ 7\ 8\ 7 \end{array}$$
3. (a)
$$\begin{array}{r} \text{T-Th Th H T O} \\ 2\ 0\ 0\ 1\ 0 \\ 1\ 6\ 2\ 5\ 1 \\ + 4\ 3\ 2 \\ \hline 3\ 6\ 6\ 9\ 3 \end{array}$$
- (b)
$$\begin{array}{r} \text{T-Th Th H T O} \\ 3\ 1\ 5\ 1\ 1 \\ 4\ 1\ 2\ 0 \\ 1\ 3\ 0 \\ 1\ 2 \\ + 4 \\ \hline 3\ 5\ 7\ 7\ 7 \end{array}$$
- (c)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 1\ 0\ 3\ 2\ 5\ 1 \\ 2\ 1\ 1\ 4\ 4\ 2 \\ 2\ 0\ 3\ 0\ 0\ 1 \\ + 2\ 3\ 0\ 0\ 0\ 3 \\ \hline 7\ 4\ 7\ 6\ 9\ 7 \end{array}$$
- (d)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 3\ 3\ 0\ 2\ 2\ 1 \\ 1\ 2\ 0\ 1\ 1\ 2 \\ 2\ 2\ 1\ 2 \\ + 3\ 1\ 4 \\ \hline 4\ 5\ 2\ 8\ 5\ 9 \end{array}$$
4. (a) Twenty-four thousand five hundred twenty = 24520
Sixty-two thousand and thirty = 62030
Twelve thousand two hundred forty = 12240
Sum of the numbers
$$\begin{array}{r} 2\ 4\ 5\ 2\ 0 \\ 6\ 2\ 0\ 3\ 0 \\ + 1\ 2\ 2\ 4\ 0 \\ \hline 9\ 8\ 7\ 9\ 0 \end{array}$$

Nintey-eight thousand seven hundred ninety

- (b) One lakh twenty-three thousand four hundred fifty-six
= 123456

Forty-five thousand = 45000

Twenty-six lakh seven thousand two = 2607002

$$\begin{array}{r} \text{Sum of the numbers} \quad \boxed{1} \\ 1\ 2\ 3\ 4\ 5\ 6 \\ 4\ 5\ 0\ 0\ 0 \\ + 2\ 6\ 0\ 7\ 0\ 0\ 2 \\ \hline 2\ 7\ 7\ 5\ 4\ 5\ 8 \end{array}$$

Twenty-seven lakh seventy-five thousand four hundred fifty-eight.

- (c) Twenty-three thousand two = 23002
Three lakh eight thousand five hundred = 308500
Forty-one thousand two hundred four = 41204

$$\begin{array}{r} \text{Sum of the numbers} = \quad \boxed{1} \\ 2\ 3\ 0\ 0\ 2 \\ 3\ 0\ 8\ 5\ 0\ 0 \\ + 4\ 1\ 2\ 0\ 4 \\ \hline 3\ 7\ 2\ 7\ 0\ 6 \end{array}$$

Three lakh seventy-two thousand seven hundred six.

5. (a) Decreasing order of the numbers is

$$232305 > 201012 > 141030$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 2\ 3\ 2\ 3\ 0\ 5 \\ 1\ 4\ 1\ 0\ 3\ 0 \\ + 2\ 0\ 1\ 0\ 1\ 2 \\ \hline 5\ 7\ 4\ 3\ 4\ 7 \end{array}$$

- (b) Decreasing order of the numbers is

$$410101 > 303030 > 202020$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 4\ 1\ 0\ 1\ 0\ 1 \\ 3\ 0\ 3\ 0\ 3\ 0 \\ + 2\ 0\ 2\ 0\ 2\ 0 \\ \hline 9\ 1\ 5\ 1\ 5\ 1 \end{array}$$

- (c) Decreasing order of the numbers is

$$232412 > 142045 > 123531$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 2\ 3\ 2\ 4\ 1\ 2 \\ 1\ 4\ 2\ 0\ 4\ 5 \\ + 1\ 2\ 3\ 5\ 3\ 1 \\ \hline 4\ 9\ 7\ 9\ 8\ 8 \end{array}$$

(d) Decreasing order of the numbers is

$$143568 > 121410 > 114021$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 1\ 4\ 3\ 5\ 6\ 8 \\ \quad \quad \quad \quad \quad 1\ 2\ 1\ 4\ 1\ 0 \\ \quad \quad \quad \quad \quad + 1\ 1\ 4\ 0\ 2\ 1 \\ \hline \quad \quad \quad \quad \quad 3\ 7\ 8\ 9\ 9\ 9 \end{array}$$

(e) Decreasing order of the numbers is

$$321620 > 214056 > 143213$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 3\ 2\ 1\ 6\ 2\ 0 \\ \quad \quad \quad \quad \quad 2\ 1\ 4\ 0\ 5\ 6 \\ \quad \quad \quad \quad \quad + 1\ 4\ 3\ 2\ 1\ 2 \\ \hline \quad \quad \quad \quad \quad 6\ 7\ 8\ 8\ 8\ 9 \end{array}$$

(f) Decreasing order of the number is

$$321210 > 312441 > 203332$$

$$\begin{array}{r} \text{Sum of the numbers} = \quad 3\ 2\ 1\ 2\ 1\ 0 \\ \quad \quad \quad \quad \quad 3\ 1\ 2\ 4\ 4\ 1 \\ \quad \quad \quad \quad \quad + 2\ 0\ 3\ 3\ 3\ 2 \\ \hline \quad \quad \quad \quad \quad 8\ 3\ 6\ 9\ 8\ 3 \end{array}$$

Exercise 4.2

1. (a) $\begin{array}{r} \text{L T-Th Th H T O} \\ \quad \quad \quad \boxed{1}\ \boxed{1} \\ \quad \quad \quad 6\ 3\ 4\ 8\ 7 \\ + 2\ 4\ 5\ 4\ 1 \\ \hline \quad \quad \quad 8\ 8\ 0\ 2\ 8 \end{array}$ (b) $\begin{array}{r} \text{T-Th Th H T O} \\ \quad \quad \quad \boxed{1}\ \boxed{1} \\ \quad \quad \quad 8\ 3\ 6\ 7\ 8 \\ + 1\ 6\ 2\ 4\ 7 \\ \hline \quad \quad \quad 9\ 9\ 9\ 2\ 5 \end{array}$ (c) $\begin{array}{r} \text{T-Th Th H T O} \\ \quad \quad \quad \boxed{1}\ \boxed{1} \\ \quad \quad \quad 2\ 3\ 3\ 8\ 3 \\ + 6\ 5\ 7\ 0\ 8 \\ \hline \quad \quad \quad 8\ 9\ 0\ 9\ 1 \end{array}$
- (d) $\begin{array}{r} \text{L T-Th Th H T O} \\ \quad \quad \quad \boxed{1} \\ \quad \quad \quad 7\ 3\ 4\ 3\ 5\ 3 \\ \quad \quad \quad \quad 2\ 4\ 5\ 0\ 5 \\ + 2\ 4\ 0\ 1\ 2\ 7 \\ \hline \quad \quad \quad 9\ 9\ 8\ 9\ 8\ 5 \end{array}$ (e) $\begin{array}{r} \text{L T-Th Th H T O} \\ \quad \quad \quad \boxed{1}\ \boxed{2}\ \boxed{1} \\ \quad \quad \quad 6\ 4\ 5\ 6\ 4\ 3 \\ \quad \quad \quad 3\ 2\ 1\ 4\ 7\ 2 \\ \quad \quad \quad \quad + 1\ 7\ 9\ 8 \\ \hline \quad \quad \quad 9\ 6\ 8\ 9\ 1\ 3 \end{array}$ (f) $\begin{array}{r} \text{L T-Th Th H T O} \\ \quad \quad \quad \boxed{1}\ \boxed{2}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ \quad \quad \quad 3\ 3\ 8\ 5\ 7\ 3 \\ \quad \quad \quad 1\ 2\ 0\ 3\ 1\ 8 \\ \quad \quad \quad 1\ 4\ 8\ 4\ 5\ 4 \\ + 2\ 5\ 4\ 2\ 3\ 0 \\ \hline \quad \quad \quad 8\ 6\ 1\ 5\ 7\ 5 \end{array}$
2. (a) $\begin{array}{r} \text{L T-Th Th H T O} \\ \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ \quad \quad \quad 3\ 5\ 9\ 7\ 3\ 9 \\ \quad \quad \quad \quad 6\ 4\ 4\ 0\ 6 \\ \quad \quad \quad \quad \quad 5\ 2\ 4\ 0 \\ \quad \quad \quad \quad \quad + 4\ 5\ 2 \\ \hline \quad \quad \quad 4\ 2\ 9\ 8\ 3\ 7 \end{array}$ (b) $\begin{array}{r} \text{L T-Th Th H T O} \\ \boxed{2}\ \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ \quad \quad \quad 4\ 6\ 8\ 8\ 3\ 9 \\ \quad \quad \quad \quad 8\ 6\ 6\ 0\ 3 \\ \quad \quad \quad + 5\ 4\ 3\ 4\ 5 \\ \hline \quad \quad \quad 6\ 0\ 9\ 7\ 8\ 7 \end{array}$
- (c) $\begin{array}{r} \text{L T-Th Th H T O} \\ \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{2}\ \boxed{1} \\ \quad \quad \quad 8\ 9\ 7\ 8\ 4 \\ \quad \quad \quad 4\ 6\ 1\ 8\ 8\ 9 \\ \quad \quad \quad \quad + 2\ 3\ 6 \\ \hline \quad \quad \quad 5\ 5\ 1\ 9\ 0\ 9 \end{array}$ (d) $\begin{array}{r} \text{L T-Th Th H T O} \\ \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{2}\ \boxed{1} \\ \quad \quad \quad 2\ 0\ 0\ 8\ 0 \\ \quad \quad \quad \quad 5\ 8\ 8\ 8 \\ \quad \quad \quad + 8\ 9\ 8\ 9\ 9 \\ \hline \quad \quad \quad 1\ 1\ 5\ 8\ 6\ 7 \end{array}$

3. (a)

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

(b)

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

(c)

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

(d)

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

4. (a) 36 ones
30 ones + 6 ones
3 tens + 6 ones
- (c) 28 hundreds
20 hundreds + 8 hundreds
2 thousands + 8 hundreds
- (e) 15 ten-thousands
10 ten-thousands + ten thousands
1 lakh + 5 ten thousands
- (f) 18 lakhs
10 lakhs + 8 lakhs
1 ten-lakh + 8 lakhs
5. (a) 3 ones + 8 ones
11 ones
10 ones + 1 one
1 ten 1 one
- (c) 7 hundreds + 4 hundreds
11 hundreds
10 hundreds + 1 hundred
1 thousand 1 hundred
- (b) 54 tens
50 tens + 4 tens
5 hundreds + 4 tens
- (d) 37 thousands
30 thousands + 7 thousands
3 ten-thousands + 7 thousands
- (b) 5 tens + 6 tens
11 tens
10 tens + 1 ten
1 hundred 1 ten
- (d) 9 thousands + 6 thousands
10 thousands
10 thousands + 5 thousands
1 ten-thousand 5 thousands
6. (a) 64 ones = 60 ones + 4 ones = 6 tens + 4 ones
37 tens = 30 tens + 7 ones = 3 hundreds + 7 tens
26 hundreds = 20 hundreds + 6 hundreds = 2 thousands
+ 6 hundreds

$$\begin{aligned}
20 \text{ thousands} &= 2 \text{ ten-thousands} \\
64 \text{ ones} + 37 \text{ tens} + 26 \text{ hundreds} + 20 \text{ thousands} \\
&= 6 \text{ tens} + 4 \text{ ones} + 3 \text{ hundreds} + 7 \text{ tens} + 2 \text{ thousands} + \\
&\quad 6 \text{ hundreds} + 2 \text{ ten-thousands} \\
&= 2 \text{ ten-thousands} + 2 \text{ thousands} + 9 \text{ hundreds} + 13 \text{ tens} \\
&\quad + 4 \text{ ones} \\
&= 2 \text{ ten-thousands} + 2 \text{ thousands} + 9 \text{ hundreds} + 10 \text{ tens} + \\
&\quad 3 \text{ tens} + 4 \text{ ones} \\
&= 2 \text{ ten-thousands} + 2 \text{ thousands} + 9 \text{ hundreds} + 1 \text{ hundred} \\
&\quad + 3 \text{ tens} + 4 \text{ ones} \\
&= 2 \text{ ten-thousands} + 2 \text{ thousands} + 10 \text{ hundreds} + 3 \text{ tens} \\
&\quad + 4 \text{ ones} \\
&= 2 \text{ ten-thousands} + 2 \text{ thousands} + 1 \text{ thousand} + 3 \text{ tens} \\
&\quad + 4 \text{ ones} \\
&= 2 \text{ ten-thousands} + 3 \text{ thousands} + 3 \text{ tens} + 4 \text{ ones} \\
&= \text{Twenty-three thousand thirty-four} \\
&= 23,034
\end{aligned}$$

- (b) $42 \text{ ones} = 40 \text{ ones} + 2 \text{ ones} = 4 \text{ tens} + 2 \text{ ones}$
 $17 \text{ hundreds} = 10 \text{ hundreds} + 7 \text{ hundreds} = 1 \text{ thousand} + 7 \text{ hundreds}$
 $42 \text{ ones} + 17 \text{ hundreds} + 7 \text{ ten thousands}$
 $= 4 \text{ tens} + 2 \text{ ones} + 1 \text{ thousand} + 7 \text{ hundreds} + 7 \text{ ten-thousands}$
 $= \text{Seventy-one thousand seven hundred forty-two}$
 $= 71,742$
- (c) $61 \text{ tens} = 60 \text{ tens} + 1 \text{ ten} = 6 \text{ hundreds} + 1 \text{ ten}$
 $12 \text{ thousands} = 10 \text{ thousands} + 2 \text{ thousands} = 1 \text{ ten-thousand} + 2 \text{ thousands}$
 $11 \text{ ten-thousands} = 10 \text{ ten-thousands} + 1 \text{ ten-thousand}$
 $= 1 \text{ lakh} + 1 \text{ ten-thousand}$
 $61 \text{ tens} + 4 \text{ hundreds} + 12 \text{ thousands} = 11 \text{ ten-thousand}$
 $= 6 \text{ hundreds} + 1 \text{ ten} + 4 \text{ hundreds} + 1 \text{ ten-thousand}$
 $\quad + 2 \text{ thousands} + 1 \text{ lakh} + 1 \text{ ten-thousand}$
 $= 1 \text{ lakh} + 2 \text{ ten-thousands} + 2 \text{ thousands} + 10 \text{ hundreds} + 1 \text{ ten}$
 $= 1 \text{ lakh} + 2 \text{ ten-thousands} + 2 \text{ thousands} + 1 \text{ thousand} + 1 \text{ ten}$
 $= 1 \text{ lakh} + 2 \text{ ten-thousands} + 3 \text{ thousands} + 1 \text{ ten}$
 $= \text{One lakh twenty-three thousand ten}$
 $= 1,23,010$

$$\begin{aligned}
 \text{(d) } 214 \text{ ones} &= 200 \text{ ones} + 10 \text{ ones} + 4 \text{ ones} = 2 \text{ hundreds} + 1 \text{ ten} \\
 &\qquad\qquad\qquad + 4 \text{ ones} \\
 18 \text{ hundreds} &= 10 \text{ hundreds} + 8 \text{ hundreds} = 1 \text{ thousand} \\
 &\qquad\qquad\qquad + 8 \text{ hundreds} \\
 71 \text{ thousands} &= 70 \text{ thousands} + 1 \text{ thousand} = 7 \text{ ten-thousands} \\
 &\qquad\qquad\qquad + 1 \text{ thousand} \\
 214 \text{ ones} + 18 \text{ hundreds} + 71 \text{ thousands} + 4 \text{ ten-thousands} \\
 &= 2 \text{ hundreds} + 1 \text{ ten} + 4 \text{ ones} + 1 \text{ thousand} + 8 \text{ hundreds} \\
 &\qquad\qquad\qquad + 7 \text{ ten-thousands} + 1 \text{ thousand} + 4 \text{ ten-thousands} \\
 &= 11 \text{ ten-thousands} + 2 \text{ thousands} + 10 \text{ hundreds} + 1 \text{ ten} \\
 &\qquad\qquad\qquad + 4 \text{ ones} \\
 &= 10 \text{ ten-thousands} + 1 \text{ ten-thousands} + 2 \text{ thousands} \\
 &\qquad\qquad\qquad + 1 \text{ thousand} + 1 \text{ ten} + 4 \text{ ones} \\
 &= 1 \text{ lakh} + 1 \text{ ten-thousands} + 3 \text{ thousands} + 1 \text{ ten} + 4 \text{ ones} \\
 &= \text{One lakh thirteen thousand fourteen} \\
 &= 1,13,014
 \end{aligned}$$

Exercise 4.3

1. and 2. As per answersheet.

$$\begin{array}{r}
 \text{3. (a) } \begin{array}{r} \boxed{1} \boxed{2} \boxed{1} \boxed{1} \\ 7 \ 5 \ 9 \ 6 \ 4 \\ + \quad 3 \ 9 \ 4 \ 0 \\ + \ 1 \ 7 \ 6 \ 7 \ 8 \\ \hline 9 \ 7 \ 5 \ 8 \ 2 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(b) } \begin{array}{r} \boxed{1} \quad \quad \boxed{1} \boxed{1} \\ 5 \ 3 \ 3 \ 4 \ 5 \ 0 \\ + \ 4 \ 7 \ 3 \ 2 \ 5 \ 2 \\ + \quad 5 \ 3 \ 1 \ 5 \ 9 \\ \hline 1 \ 0 \ 5 \ 9 \ 8 \ 6 \ 1 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(c) } \begin{array}{r} \boxed{1} \\ 4 \ 0 \ 0 \ 0 \ 5 \\ + \quad 7 \ 5 \ 2 \ 0 \\ + \ 4 \ 1 \ 5 \ 5 \ 3 \\ \hline 8 \ 9 \ 0 \ 7 \ 8 \end{array}
 \end{array}$$

$$\begin{aligned}
 \text{4. (a) } &132154 + 127563 \\
 &= 132154 + 100000 + 20000 + 7000 + 500 + 60 + 3 \\
 &= 232154 + 20000 + 7000 + 500 + 60 + 3 \\
 &= 252154 + 7000 + 500 + 60 + 3 \\
 &= 259154 + 500 + 60 + 3 \\
 &= 259654 + 60 + 3 \\
 &= 259714 + 3 \\
 &= 259717 \\
 \text{(b) } &27846 + 57632 \\
 &= 27846 + 50000 + 7000 + 600 + 30 + 2 \\
 &= 77846 + 7000 + 600 + 30 + 2 \\
 &= 84846 + 600 + 30 + 2 \\
 &= 85446 + 30 + 2 \\
 &= 85476 + 2 \\
 &= 85478
 \end{aligned}$$

- (c) $214131 + 205406$
 $= 214131 + 200000 + 5000 + 400 + 6$
 $= 414131 + 5000 + 400 + 6$
 $= 419131 + 400 + 6$
 $= 419531 + 6$
 $= 419537$
- (d) $105732 + 253162$
 $= 105732 + 200000 + 50000 + 3000 + 100 + 60 + 2$
 $= 305732 + 50000 + 3000 + 100 + 60 + 2$
 $= 355732 + 3000 + 100 + 60 + 2$
 $= 358732 + 100 + 60 + 2$
 $= 358832 + 60 + 2$
 $= 358892 + 2$
 $= 358894$
- (e) $143465 + 165488$
 $= 143465 + 100000 + 60000 + 5000 + 400 + 80 + 8$
 $= 243465 + 60000 + 5000 + 400 + 80 + 8$
 $= 303465 + 5000 + 400 + 80 + 8$
 $= 308465 + 400 + 80 + 8$
 $= 308865 + 80 + 8$
 $= 308945 + 8$
 $= 308953$
- (f) $328105 + 140321$
 $= 328105 + 100000 + 40000 + 300 + 20 + 1$
 $= 428105 + 40000 + 300 + 20 + 1$
 $= 468105 + 300 + 20 + 1$
 $= 468405 + 20 + 1$
 $= 468425 + 1$
 $= 468426$

Exercise 4.4

1. Number of jeans manufactured in 2015 = 62473 6 2 4 7 3
 Number of jeans manufactured in 2016 = 36425 + 3 6 4 2 5
 Total jeans manufactured 98,898 jeans in two years. 9 8 8 9 8
- Hence, the factory manufactured 98,898 jeans in two years.
2. Number of children in exhibition = 5725 □ □ □
 Number of men in exhibition = 15700 5 7 2 5
 Number of women in exhibition = 14625 1 5 7 0 0
 Total people = 36050 + 1 4 6 2 5
3 6 0 5 0
- Hence, 36,050 people in all visited the exhibition.

3. Notebooks in a bookshop = 565

More number of books = 5250

Total books = 5815

$$\begin{array}{r} \boxed{1} \\ 565 \\ + 5250 \\ \hline 5815 \end{array}$$

Hence, there are 5,815 notebooks in the bookshop now.

4. Cost of a TV = 45,575

Cost of a refrigerator = 25,615

Total cost = 71,190

$$\begin{array}{r} \boxed{1} \boxed{1} \boxed{1} \\ ₹ 45575 \\ + ₹ 25615 \\ \hline ₹ 71190 \end{array}$$

Hence, he spend ₹71,190 in all.

5. Weight of potatoes = 10545 kg

Weight of onions = 11275 kg

Weight of tomatoes = 10025 kg

Total weight = 31,845

$$\begin{array}{r} \boxed{1} \boxed{1} \\ 10545 \text{ kg} \\ 11275 \text{ kg} \\ + 10025 \text{ kg} \\ \hline 31845 \text{ kg} \end{array}$$

Hence, he sold 31,845 kg of the vegetables.

CHECK YOURSELF

1. to 4. As per answersheet.

5. Subtraction**Exercise 5.1**

1. (a) $\begin{array}{r} \text{T-Th Th H T O} \\ 56715 \\ - 23403 \\ \hline 33312 \end{array}$ Step 1 : Subtract ones $5 - 3 = 2$ ones
Step 2 : Subtract tens $1 - 0 = 1$ ten
Step 3 : Subtract hundreds $7 - 4 = 3$ hundreds
Step 4 : Subtract thousands $6 - 3 = 3$ thousands
Step 5 : Subtract ten-thousands $5 - 2$
= 3 ten-thousands

- (b) Similarly,

$$\begin{array}{r} \text{T-Th Th H T O} \\ 48394 \\ - 14212 \\ \hline 34182 \end{array}$$

- (c)

$$\begin{array}{r} \text{T-Th Th H T O} \\ 89344 \\ - 14221 \\ \hline 75123 \end{array}$$

2. (a)

$$\begin{array}{r} \text{L T-Th Th H T O} \\ 154859 \\ - 154759 \\ \hline 000100 \end{array}$$

- (b)

$$\begin{array}{r} \text{L T-Th Th H T O} \\ 365310 \\ - 164310 \\ \hline 201000 \end{array}$$

- (c)

$$\begin{array}{r} \text{L T-Th Th H T O} \\ 423430 \\ - 213420 \\ \hline 210010 \end{array}$$

- (d)

$$\begin{array}{r} \text{L T-Th Th H T O} \\ 713254 \\ - 613021 \\ \hline 100233 \end{array}$$

3. (a)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 9 \ 8 \ 6 \ 5 \ 7 \ 8 \\ -4 \ 1 \ 5 \ 3 \ 7 \ 8 \\ \hline 5 \ 7 \ 1 \ 2 \ 0 \ 0 \end{array}$$
- (b)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 5 \ 6 \ 8 \ 9 \ 7 \ 8 \\ -2 \ 3 \ 4 \ 5 \ 6 \ 8 \\ \hline 3 \ 3 \ 4 \ 4 \ 1 \ 0 \end{array}$$
- (c)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 8 \ 1 \ 7 \ 5 \ 6 \ 9 \\ -4 \ 0 \ 5 \ 3 \ 4 \ 7 \\ \hline 4 \ 1 \ 2 \ 2 \ 2 \ 2 \end{array}$$
- (d)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 4 \ 6 \ 5 \ 1 \ 2 \ 4 \\ -1 \ 5 \ 4 \ 0 \ 1 \ 4 \\ \hline 3 \ 1 \ 1 \ 1 \ 1 \ 0 \end{array}$$
- (e)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 4 \ 5 \ 6 \ 5 \ 3 \ 5 \\ -3 \ 3 \ 5 \ 3 \ 0 \ 3 \\ \hline 1 \ 2 \ 1 \ 2 \ 3 \ 2 \end{array}$$
- (f)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 9 \ 3 \ 6 \ 8 \ 6 \ 6 \\ -9 \ 2 \ 6 \ 7 \ 4 \ 1 \\ \hline 0 \ 1 \ 0 \ 1 \ 2 \ 5 \end{array}$$
4. (a)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 2 \ 6 \ 4 \ 3 \ 1 \ 2 \\ -1 \ 5 \ 3 \ 2 \ 0 \ 0 \\ \hline 1 \ 1 \ 1 \ 1 \ 1 \ 2 \end{array}$$
- (b)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 3 \ 2 \ 4 \ 6 \ 9 \ 1 \\ -2 \ 1 \ 4 \ 6 \ 8 \ 0 \\ \hline 1 \ 1 \ 0 \ 0 \ 1 \ 1 \end{array}$$
- (c)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 8 \ 2 \ 1 \ 8 \ 9 \ 6 \\ -4 \ 1 \ 0 \ 6 \ 7 \ 5 \\ \hline 4 \ 1 \ 1 \ 2 \ 2 \ 1 \end{array}$$
- (d)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 4 \ 2 \ 9 \ 3 \ 5 \ 1 \\ - \quad 1 \ 8 \ 2 \ 4 \ 0 \\ \hline 4 \ 1 \ 1 \ 1 \ 1 \ 1 \end{array}$$
- (e)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 5 \ 3 \ 6 \ 9 \ 1 \ 9 \\ -3 \ 3 \ 2 \ 1 \ 0 \ 8 \\ \hline 2 \ 0 \ 4 \ 8 \ 1 \ 1 \end{array}$$
- (f)
$$\begin{array}{r} \text{L T-Th Th H T O} \\ 1 \ 7 \ 5 \ 6 \ 8 \ 9 \\ -6 \ 4 \ 5 \ 7 \ 8 \\ \hline 1 \ 1 \ 1 \ 1 \ 1 \ 1 \end{array}$$

Exercise 5.2

1. (a) Twenty-seven thousand twenty-five = 27025

One lakh five hundred = 100500

$$\begin{array}{r} \boxed{9} \ \boxed{10} \ \boxed{4} \ \boxed{9} \ \boxed{10} \\ \del{10} \ \del{0} \ \del{5} \ \del{0} \ \del{0} \\ -2 \ 7 \ 0 \ 2 \ 5 \end{array}$$

their difference = $\underline{73475}$

Sevent-three thousand four hundred seventy-five

- (b) one lakh = 100000

Ninety-six thousand nine hundred nine = 96909

$$\begin{array}{r} \boxed{9} \ \boxed{9} \ \boxed{9} \ \boxed{9} \ \boxed{10} \\ \del{10} \ \del{0} \ \del{0} \ \del{0} \ \del{0} \\ -9 \ 6 \ 9 \ 0 \ 9 \end{array}$$

their difference = $\underline{3091}$

Three thousand ninety-one

(c) Six lakh forty-thousand two = 640002
 Four lakh sixty-two thousand five hundred eighty-three = 462583
 their difference =

$$\begin{array}{r} \boxed{5} \boxed{13} \boxed{9} \boxed{10} \\ \cancel{6} \cancel{4} \cancel{0} \cancel{0} 2 \\ - 4 \ 6 \ 2 \ 5 \ 8 \ 3 \\ \hline 1 \ 7 \ 7 \ 4 \ 1 \ 9 \end{array}$$

One lakh seventy-seven thousand four hundred nineteen

(d) Thirty-two thousand seven hundred twenty = 32720
 Twenty-eight thousand seven-hundred thirty-six = 28736

$$\begin{array}{r} \boxed{2} \boxed{11} \boxed{16} \boxed{11} \boxed{10} \\ 3 \ 2 \ 7 \ 2 \ 0 \\ - 2 \ 8 \ 7 \ 3 \ 6 \\ \hline 3 \ 9 \ 8 \ 4 \end{array}$$

their difference =

Three thousand nine hundred eighty-four.

2. (a)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{4} \ \boxed{13} \ \boxed{7} \ \boxed{13} \ \boxed{12} \\ \cancel{5} \ \cancel{3} \ \cancel{8} \ \cancel{4} \ 2 \\ - 4 \ 5 \ 7 \ 6 \ 3 \\ \hline 0 \ 8 \ 0 \ 7 \ 9 \end{array}$$
- (b)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{3} \ \boxed{12} \ \boxed{17} \ \boxed{10} \\ \cancel{4} \ \cancel{3} \ \cancel{8} \ \cancel{0} \ 4 \\ - 3 \ 5 \ 9 \ 9 \ 0 \\ \hline 0 \ 7 \ 8 \ 1 \ 4 \end{array}$$
- (c)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{2} \ \boxed{15} \ \boxed{10} \ \boxed{1} \ \boxed{10} \\ \cancel{3} \ \cancel{6} \ \cancel{0} \ \cancel{2} \ \cancel{0} \\ - \ 7 \ 9 \ 0 \ 8 \\ \hline 2 \ 8 \ 1 \ 1 \ 2 \end{array}$$
3. (a)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{8} \ \boxed{9} \ \boxed{9} \ \boxed{14} \ \boxed{12} \\ \cancel{9} \ \cancel{0} \ \cancel{0} \ \cancel{5} \ \cancel{2} \\ - 5 \ 3 \ 3 \ 6 \ 9 \\ \hline 3 \ 6 \ 6 \ 8 \ 3 \end{array}$$
- (b)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{7} \ \boxed{14} \ \boxed{18} \ \boxed{9} \ \boxed{15} \\ \cancel{8} \ \cancel{5} \ \cancel{9} \ \cancel{0} \ \cancel{5} \\ - 9 \ 9 \ 9 \ 7 \\ \hline 7 \ 5 \ 9 \ 0 \ 8 \end{array}$$
- (c)
$$\begin{array}{r} \text{T-Th} \ \text{Th} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{1} \ \boxed{11} \ \boxed{10} \ \boxed{9} \ \boxed{10} \\ \cancel{2} \ \cancel{2} \ \cancel{1} \ \cancel{0} \ \cancel{0} \\ - 9 \ 8 \ 8 \ 9 \\ \hline 1 \ 2 \ 2 \ 1 \ 1 \end{array}$$
- (d)
$$\begin{array}{r} \text{L-T-ThTh} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{4} \ \boxed{18} \ \boxed{6} \ \boxed{10} \ \boxed{2} \ \boxed{14} \\ 5 \ 8 \ 7 \ 0 \ \cancel{3} \ \cancel{4} \\ - 4 \ 9 \ 5 \ 4 \ 2 \ 7 \\ \hline 9 \ 1 \ 6 \ 0 \ 7 \end{array}$$
- (e)
$$\begin{array}{r} \text{L-T-ThTh} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{2} \ \boxed{15} \ \boxed{11} \ \boxed{13} \ \boxed{12} \ \boxed{12} \\ 3 \ \cancel{6} \ \cancel{2} \ \cancel{4} \ \cancel{3} \ \cancel{2} \\ - 2 \ 9 \ 2 \ 8 \ 3 \ 5 \\ \hline 0 \ 6 \ 9 \ 5 \ 9 \ 7 \end{array}$$
- (f)
$$\begin{array}{r} \text{L-T-ThTh} \ \text{H} \ \text{T} \ \text{O} \\ \boxed{4} \ \boxed{12} \ \boxed{6} \ \boxed{16} \\ 5 \ \cancel{2} \ \cancel{7} \ \cancel{6} \ 4 \ 3 \\ - 4 \ 9 \ 6 \ 9 \ 3 \ 2 \\ \hline 0 \ 3 \ 0 \ 7 \ 1 \ 1 \end{array}$$
4. (a)
$$\begin{array}{r} \ \boxed{6} \ \boxed{14} \\ 7 \ 6 \ 8 \ \cancel{7} \ \cancel{4} \\ - 5 \ 0 \ 4 \ 2 \ 7 \\ \hline 2 \ 6 \ 4 \ 4 \ 7 \end{array}$$
- (b)
$$\begin{array}{r} \boxed{1} \ \boxed{9} \ \boxed{10} \ \boxed{12} \\ \cancel{2} \ \cancel{0} \ \cancel{1} \ \cancel{2} \ 7 \ 5 \\ - 1 \ 0 \ 4 \ 6 \ 1 \ 3 \\ \hline 0 \ 9 \ 6 \ 6 \ 6 \ 2 \end{array}$$
- (c)
$$\begin{array}{r} \boxed{1} \ \boxed{10} \ \boxed{4} \ \boxed{9} \ \boxed{9} \ \boxed{10} \\ \cancel{2} \ \cancel{0} \ \cancel{5} \ \cancel{0} \ 0 \ 0 \\ - 1 \ 5 \ 1 \ 6 \ 0 \ 3 \\ \hline 0 \ 5 \ 3 \ 3 \ 9 \ 7 \end{array}$$
- (d)
$$\begin{array}{r} \boxed{2} \ \boxed{10} \\ 7 \ \cancel{3} \ \cancel{0} \ 9 \ 9 \ 0 \\ - 2 \ 2 \ 5 \ 6 \ 4 \ 0 \\ \hline 5 \ 0 \ 5 \ 3 \ 5 \ 0 \end{array}$$
- (e)
$$\begin{array}{r} \boxed{2} \ \boxed{10} \ \boxed{4} \ \boxed{9} \ \boxed{9} \ \boxed{10} \\ \cancel{3} \ \cancel{0} \ \cancel{5} \ \cancel{0} \ \cancel{0} \ \cancel{0} \\ - 1 \ 5 \ 1 \ 6 \ 0 \ 3 \\ \hline 1 \ 5 \ 3 \ 3 \ 9 \ 7 \end{array}$$
- (f)
$$\begin{array}{r} \boxed{5} \ \boxed{9} \ \boxed{9} \ \boxed{9} \ \boxed{9} \ \boxed{10} \\ \cancel{6} \ \cancel{0} \ \cancel{0} \ \cancel{0} \ \cancel{0} \ \cancel{0} \\ - 7 \ 4 \ 0 \ 3 \ 2 \\ \hline 5 \ 2 \ 5 \ 9 \ 6 \ 8 \end{array}$$
5. (a)
$$\begin{array}{r} \boxed{3} \ \boxed{16} \\ \cancel{4} \ \cancel{6} \ 7 \ 8 \ 4 \ 3 \\ - 2 \ 9 \ 3 \ 0 \ 4 \ 2 \\ \hline 1 \ 7 \ 4 \ 8 \ 0 \ 1 \end{array}$$
- (b)
$$\begin{array}{r} \boxed{4} \ \boxed{13} \ \boxed{9} \ \boxed{9} \ \boxed{12} \\ \cancel{5} \ \cancel{4} \ \cancel{0} \ \cancel{0} \ \cancel{2} \ 6 \\ - 2 \ 8 \ 4 \ 9 \ 7 \ 6 \\ \hline 2 \ 5 \ 5 \ 0 \ 5 \ 0 \end{array}$$
- (c)
$$\begin{array}{r} \boxed{2} \ \boxed{9} \ \boxed{14} \ \boxed{10} \ \boxed{3} \ \boxed{10} \\ \cancel{3} \ \cancel{0} \ \cancel{5} \ \cancel{0} \ \cancel{4} \ \cancel{0} \\ - 9 \ 8 \ 6 \ 3 \ 9 \\ \hline 2 \ 0 \ 6 \ 4 \ 0 \ 1 \end{array}$$
- (d)
$$\begin{array}{r} \boxed{6} \ \boxed{18} \\ 2 \ 7 \ \cancel{8} \ 9 \ 7 \ 6 \\ - 2 \ 6 \ 9 \ 8 \ 7 \ 2 \\ \hline 0 \ 0 \ 9 \ 1 \ 0 \ 4 \end{array}$$

6. As per answersheet.

Exercise 5.3

1. (a)
$$\begin{array}{r} \boxed{1} \\ 45323 \\ + 85673 \\ \hline 130996 \end{array} \quad \begin{array}{r} \boxed{12} \boxed{10} \\ 730996 \\ - 55432 \\ \hline 75564 \end{array}$$
- (b)
$$\begin{array}{r} 2437 \\ + 8342 \\ \hline 10779 \end{array} \quad \begin{array}{r} 1604 \\ + 4395 \\ \hline 5999 \end{array} \quad \begin{array}{r} \boxed{9} \boxed{16} \boxed{17} \\ 10779 \\ - 5999 \\ \hline 4780 \end{array}$$
- (c)
$$\begin{array}{r} 10056 \\ + 7320 \\ \hline 17376 \end{array} \quad \begin{array}{r} \boxed{1} \\ 6325 \\ + 3267 \\ \hline 9592 \end{array} \quad \begin{array}{r} \boxed{16} \boxed{12} \boxed{17} \\ 73776 \\ - 9592 \\ \hline 7784 \end{array}$$
- (d)
$$\begin{array}{r} \boxed{1} \boxed{2} \boxed{1} \\ 61243 \\ 28935 \\ + 74831 \\ \hline 165009 \end{array} \quad \begin{array}{r} \boxed{1} \boxed{12} \boxed{14} \boxed{7} \boxed{9} \boxed{10} \\ 234800 \\ - 165009 \\ \hline 69791 \end{array}$$
- (e)
$$\begin{array}{r} \boxed{1} \\ 38672 \\ + 1256 \\ \hline 39928 \end{array} \quad \begin{array}{r} \boxed{1} \boxed{1} \boxed{1} \\ 4621 \\ 73 \\ 328 \\ + 17653 \\ \hline 22675 \end{array} \quad \begin{array}{r} \boxed{8} \boxed{12} \\ 39028 \\ - 22675 \\ \hline 17253 \end{array}$$
- (f)
$$\begin{array}{r} 600000 \\ + 2159 \\ \hline 602159 \end{array} \quad \begin{array}{r} \boxed{1} \boxed{1} \\ 43214 \\ + 69874 \\ \hline 113088 \end{array} \quad \begin{array}{r} \boxed{5} \boxed{9} \boxed{12} \boxed{0} \boxed{15} \\ 602159 \\ - 113088 \\ \hline 489071 \end{array}$$

2. (a) $142046 - 41045$
 $= 142046 - (40000 + 1000 + 40 + 5)$
 $= 142046 - 40000 - 1000 - 40 - 5$
 $= 102046 - 1000 - 40 - 5$
 $= 101046 - 40 - 5$
 $= 101006 - 5$
 $= 101001$
- (b) $74853 - 63712$
 $= 74853 - (60000 + 3000 + 700 + 10 + 2)$
 $= 74853 - 60000 - 3000 - 700 - 10 - 2$
 $= 14853 - 3000 - 700 - 10 - 2$
 $= 11853 - 700 - 10 - 2$

$$= 11153 - 10 - 2$$

$$= 11143 - 2$$

$$= 11141$$

$$(c) 763548 - 632014$$

$$= 763548 - (600000 + 30000 + 2000 + 10 + 4)$$

$$= 763548 - 600000 - 30000 - 2000 - 10 - 4$$

$$= 163548 - 30000 - 2000 - 10 - 4$$

$$= 133548 - 2000 - 10 - 4$$

$$= 131548 - 10 - 4$$

$$= 131538 - 4$$

$$= 131534$$

$$(d) 563208 - 431107$$

$$= 563208 - (400000 + 30000 + 1000 + 100 + 7)$$

$$= 563208 - 400000 - 30000 - 1000 - 100 - 7$$

$$= 163208 - 30000 - 1000 - 100 - 7$$

$$= 133208 - 1000 - 100 - 7$$

$$= 132208 - 100 - 7$$

$$= 132108 - 7$$

$$= 132101$$

$$(e) 321995 - 210860$$

$$= 321995 - (200000 + 10000 + 800 + 60)$$

$$= 321995 - 200000 - 10000 - 800 - 60$$

$$= 121995 - 10000 - 800 - 60$$

$$= 111995 - 800 - 60$$

$$= 111195 - 60$$

$$= 111135$$

$$(f) 134869 - 3768$$

$$= 134869 - (3000 + 700 + 60 + 8)$$

$$= 134869 - 3000 - 700 - 60 - 8$$

$$= 131869 - 700 - 60 - 8$$

$$= 131169 - 60 - 8$$

$$= 131109 - 8$$

$$= 131101$$

$$3. (a) 13257 - 12993$$

$$= (13257 + 7) - (12993 + 7)$$

$$= 13264 - 13000$$

$$= 264$$

$$(b) 169854 - 99999$$

$$= (169854 + 1) - (99999 + 1)$$

$$= 169855 - 100000$$

$$= 69855$$

- (c) $246178 - 199991$
 $= (246178 + 9) - (199991 + 9)$
 $= 246187 - 200000$
 $= 46187$
- (d) $256321 - 198998$
 $= (256321 + 2) - (198998 + 2)$
 $= 256323 - 199000$
 $= 57323$
- (e) $284317 - 199999$
 $= (384317 + 1) - (199999 + 1)$
 $= 284318 - 200000$
 $= 84318$
- (f) $300000 - 299999$
 $= 1$

Exercise 5.4

- Auditorium can hold = 50,000 people
 allowed in Ist phase = 32890 people
 people allowed in IInd phase = $\begin{array}{r} \boxed{4} \boxed{9} \boxed{9} \boxed{10} \\ \cancel{5} \cancel{0} \cancel{0} \cancel{0} \end{array}$
 17110 people we allowed in
 second phase. $\begin{array}{r} \\ - 3 \ 2 \ 8 \ 9 \ 0 \\ \hline 1 \ 7 \ 1 \ 1 \ 0 \end{array}$
- All the schools have planted plantes = 32880
 Sonam's school planted school = 10500
 The plants planted by rest of school = $\begin{array}{r} 3 \ 2 \ 8 \ 8 \ 0 \\ - 1 \ 0 \ 5 \ 0 \ 0 \\ \hline 2 \ 2 \ 3 \ 8 \ 0 \end{array}$
 Thus 22380 plants were planted by
 rest of the schools.
- The sum of three numbers = 181911
 The two numbers are 112562 and 60151
 Third number = $181911 - (112562 + 60151)$
 $= 181911 - 172713 = 9198$
 Thus the third number is 9198.
- Blankets manufactured in on-season = 135730
 Blankets manufactured in off-season = 240568
 the difference = $\begin{array}{r} \boxed{3} \boxed{9} \boxed{15} \\ 2 \ \cancel{4} \ \cancel{0} \ 5 \ 6 \ 8 \\ - 1 \ 3 \ 5 \ 7 \ 3 \ 0 \\ \hline 1 \ 0 \ 4 \ 8 \ 3 \ 8 \end{array}$
 Thus the 104838 more blankets are manufactured in off-season.
- There were wheat bags in godown = 256387
 Number of bags were removed = 85639
 Number of bags left in the godown = $\begin{array}{r} \boxed{1} \boxed{15} \boxed{5} \boxed{13} \boxed{7} \boxed{17} \\ \cancel{2} \ \cancel{5} \ \cancel{6} \ \cancel{3} \ \cancel{8} \ \cancel{7} \\ - 8 \ 5 \ 6 \ 9 \ 3 \\ \hline 1 \ 7 \ 0 \ 7 \ 4 \ 8 \end{array}$
 Thus, 170748 bags were left in the
 godown.

CHECK YOURSELF

1. to 4. As per answersheet.

6. Multiplication**Exercise 6.1**

As per answersheet.

Exercise 6.2

$$\begin{array}{r}
 1. \text{ (a)} \quad 324 \\
 \times 22 \\
 \hline
 648 \rightarrow (324 \times 2) \\
 + 6480 \rightarrow (324 \times 20) \\
 \hline
 7128
 \end{array}$$

$$\begin{array}{r}
 \text{(c)} \quad 657 \\
 \times 101 \\
 \hline
 657 \rightarrow (657 \times 1) \\
 0000 \rightarrow (657 \times 0) \\
 + 65700 \rightarrow (657 \times 100) \\
 \hline
 66357
 \end{array}$$

$$\begin{array}{r}
 \text{(e)} \quad 7134 \\
 \times 57 \\
 \hline
 49938 \rightarrow (7134 \times 7) \\
 + 356700 \rightarrow (7134 \times 50) \\
 \hline
 406638
 \end{array}$$

$$\begin{array}{r}
 \text{(g)} \quad 3216 \\
 \times 183 \\
 \hline
 9648 \rightarrow (3216 \times 3) \\
 257280 \rightarrow (3216 \times 80) \\
 + 321600 \rightarrow (3216 \times 100) \\
 \hline
 588528
 \end{array}$$

$$\begin{array}{r}
 2. \text{ (a)} \quad 490 \\
 \times 176 \\
 \hline
 2940 \rightarrow (490 \times 6) \\
 34300 \rightarrow (490 \times 70) \\
 + 49000 \rightarrow (490 \times 100) \\
 \hline
 86240
 \end{array}$$

$$\begin{array}{r}
 \text{(c)} \quad 3264 \\
 \times 348 \\
 \hline
 26112 \rightarrow (3264 \times 8) \\
 130560 \rightarrow (3264 \times 40) \\
 + 979200 \rightarrow (3264 \times 300) \\
 \hline
 1135872
 \end{array}$$

$$\begin{array}{r}
 \text{(b)} \quad 567 \\
 \times 11 \\
 \hline
 567 \rightarrow (567 \times 1) \\
 + 5670 \rightarrow (567 \times 10) \\
 \hline
 6237
 \end{array}$$

$$\begin{array}{r}
 \text{(d)} \quad 2936 \\
 \times 287 \\
 \hline
 20552 \rightarrow (2936 \times 7) \\
 234880 \rightarrow (2936 \times 80) \\
 + 587200 \rightarrow (2936 \times 200) \\
 \hline
 842632
 \end{array}$$

$$\begin{array}{r}
 \text{(f)} \quad 6724 \\
 \times 92 \\
 \hline
 13448 \rightarrow (6724 \times 2) \\
 + 605160 \rightarrow (6724 \times 90) \\
 \hline
 618608
 \end{array}$$

$$\begin{array}{r}
 \text{(h)} \quad 5224 \\
 \times 374 \\
 \hline
 20896 \rightarrow (5224 \times 4) \\
 365680 \rightarrow (5224 \times 70) \\
 + 1567200 \rightarrow (5224 \times 300) \\
 \hline
 1953776
 \end{array}$$

$$\begin{array}{r}
 \text{(b)} \quad 782 \\
 \times 325 \\
 \hline
 3910 \rightarrow (782 \times 5) \\
 15640 \rightarrow (782 \times 20) \\
 + 234600 \rightarrow (782 \times 300) \\
 \hline
 254150
 \end{array}$$

$$\begin{array}{r}
 \text{(d)} \quad 9675 \\
 \times 456 \\
 \hline
 58050 \rightarrow (9675 \times 6) \\
 483750 \rightarrow (9675 \times 50) \\
 + 3870000 \rightarrow (9675 \times 400) \\
 \hline
 4411800
 \end{array}$$

3. (a)
$$\begin{array}{r} 52 \\ \times 16 \\ \hline 312 \\ + 520 \\ \hline 832 \end{array}$$
- (b)
$$\begin{array}{r} 84 \\ \times 19 \\ \hline 756 \\ + 840 \\ \hline 1596 \end{array}$$
- (c)
$$\begin{array}{r} 8 \\ \times 4 \\ \hline 32 \end{array}$$
- (d)
$$\begin{array}{r} 125 \\ \times 24 \\ \hline 500 \\ + 2500 \\ \hline 3000 \end{array}$$
- (e)
$$\begin{array}{r} 261 \\ \times 67 \\ \hline 1827 \\ + 15660 \\ \hline 17487 \end{array}$$
- (f)
$$\begin{array}{r} 451 \\ \times 201 \\ \hline 451 \\ 0000 \\ + 90200 \\ \hline 90651 \end{array}$$
4. (a)
$$\begin{array}{r} 242 \\ \times 9 \\ \hline 2178 \end{array}$$
- (b)
$$\begin{array}{r} 670 \\ \times 20 \\ \hline 000 \\ + 13400 \\ \hline 13400 \end{array}$$
- (c)
$$\begin{array}{r} 18 \\ \times 6 \\ \hline 108 \end{array}$$
- (d)
$$\begin{array}{r} 521 \\ \times 23 \\ \hline 1563 \\ + 10420 \\ \hline 11983 \end{array}$$
- (e)
$$\begin{array}{r} 190 \\ \times 11 \\ \hline 190 \\ + 1900 \\ \hline 2090 \end{array}$$
- (f)
$$\begin{array}{r} 14 \\ \times 12 \\ \hline 28 \\ + 140 \\ \hline 168 \end{array}$$
- (b)
$$\begin{array}{r} 13400 \\ \times 18 \\ \hline 107200 \\ + 134000 \\ \hline 241200 \end{array}$$
- (c)
$$\begin{array}{r} 8421 \\ \times 108 \\ \hline 67368 \\ 000000 \\ + 842100 \\ \hline 909468 \end{array}$$
- (d)
$$\begin{array}{r} 11983 \\ \times 5 \\ \hline 59915 \end{array}$$
- (e)
$$\begin{array}{r} 2090 \\ \times 9 \\ \hline 18810 \end{array}$$
- (f)
$$\begin{array}{r} 15456 \\ \times 17 \\ \hline 108192 \\ + 154560 \\ \hline 262752 \end{array}$$

Exercise 6.3

1. (a) $11 \times 10 + 3 \times 5 - 18 \times 9$ (b) $15 \times 9 + 12 \times 6 - 20 \times 10$
 $= 110 + 15 - 162$ $= 135 + 72 - 200$
 $= 125 - 162 = -37$ $= 207 - 200 = 7$
- (c) $104 - 13 \times 6 + 23 - 5 \times 6$ (d) $520 - 15 \times 7 - 8 \times 7 - 12 \times 6$
 $= 104 - 78 + 23 - 30$ $= 520 - (105 + 56 + 72)$
 $= 104 + 23 - 78 - 30$ $= 520 - 233$
 $= 127 - 108 = 19$ $= 287$
- (e) $753 \times 5 - 319 + 272 - 880$ (f) $2375 - 642 + 172 \times 9 - 656$
 $= 3765 + 272 - 319 - 880$ $= 2375 + 1548 - 642 - 656$
 $= 4037 - 1199$ $= 3923 - 1298$
 $= 2838$ $= 2625$

2. Shuhani took time to paint a portrait = 1980 minutes

$$\begin{array}{r} \text{She will take time to paint such 45 portraits} = 1980 \\ \times 45 \\ \hline 9900 \end{array}$$

Thus, Shuhani will take 89100 minutes to paint such 45 portraits $\frac{+79200}{89100}$ minutes

3. Each barrel can hold petrol = 900 litre

$$\begin{array}{r} \text{Petrol can be filled in 6590 barrels} = 6590 \\ \times 900 \\ \hline 0000 \\ 0000 \end{array}$$

Thus, 591300 litres of petrol can be filled in 6590 such barrels. $\frac{+5931000}{5931000}$ litres

4. There are students in college = 90

$$\begin{array}{r} \text{Each student has number of book} = 5 \quad 90 \quad 1355 \\ \times 5 \quad \times 450 \quad \times 450 \\ \hline 450 \quad 0000 \\ 67750 \\ \hline \text{Each book has number of images} = 1355 \quad +542000 \\ \text{Number of total images} = 90 \times 5 \times 1355 \quad \hline 609750 \end{array}$$

5. \therefore Fees for swimming classes per person for a month = ₹1350

$$\begin{array}{r} \text{Fees for swimming classes for Trisha and Reema for a month} \quad \text{₹} 1350 \\ \times 2 \\ \hline \text{They give money to instructor} = \text{₹}3000 \quad \text{₹} 2700 \end{array}$$

They would get back =

$$\begin{array}{r} \text{Thus, they would get} \quad \text{₹} 3000 \\ \quad \text{₹} 2700 \\ \hline \text{₹}300 \text{ back.} \quad \text{₹} 300 \end{array}$$

6. School has students = 2146

Number of school buses = 14

Each bus can carry students = 85

$$\begin{array}{r} \text{Total number of students travel by bus} = \\ 14 \\ \times 85 \\ \hline 70 \end{array}$$

$$\begin{array}{r} \text{Number of students travel by other} \\ \text{means of transport} = 2146 - 1190 = 956 \\ \hline 1190 \end{array}$$

Thus, 956 students travel by other means of transport.

7. First brother earns = ₹ 3215

$$\begin{array}{r} \times 12 \\ \hline 6430 \end{array}$$

$$\begin{array}{r} + 32150 \\ \hline \underline{\underline{\text{₹ } 38580}} \text{ per year} \end{array}$$

Second brother earns = ₹ 3576 per month

$$\begin{array}{r} \times 12 \\ \hline 7152 \end{array}$$

$$\begin{array}{r} + 35760 \\ \hline \underline{\underline{\text{₹ } 42912}} \text{ per year} \end{array}$$

Thus, they both earn per year = ₹ 38580 + ₹ 42912 = ₹ 81492

8. Number of bags = 63

Each bag have coins = 352

$$\begin{array}{r} \text{there are total number of coins} = \\ 352 \\ \times 63 \\ \hline 1056 \end{array}$$

$$\begin{array}{r} + 21120 \\ \hline \underline{\underline{22176}} \end{array}$$

Thus, there are 22176 coins in all.

CHECK YOURSELF

1. to 4. As per answersheet.

7. DIVISION

1. As per answersheet.

2. (a) $11 \overline{) 3458}$ (314 → Quotient

$$\begin{array}{r} \begin{array}{l} -33 \downarrow \\ \hline 15 \\ -11 \downarrow \\ \hline 48 \\ -44 \\ \hline 4 \end{array} \\ \hline 4 \rightarrow \text{Remainder} \end{array}$$

$$Q = 314, R = 4$$

(b) $13 \overline{) 6731}$ (517 → Quotient

$$\begin{array}{r} \begin{array}{l} -65 \downarrow \\ \hline 23 \\ -13 \downarrow \\ \hline 101 \\ -91 \\ \hline 10 \end{array} \\ \hline 10 \rightarrow \text{Remainder} \end{array}$$

$$Q = 517, R = 10$$

$$(c) 12 \overline{) 6843} \left(\begin{array}{r} 570 \rightarrow \text{Quotient} \\ -60 \downarrow \\ \hline 84 \\ -84 \downarrow \\ \hline 03 \rightarrow \text{Remainder} \end{array} \right.$$

$$Q = 570, R = 3$$

$$(e) 15 \overline{) 3977} \left(\begin{array}{r} 265 \rightarrow \text{Quotient} \\ -30 \downarrow \\ \hline 97 \\ -90 \downarrow \\ \hline 77 \\ -75 \downarrow \\ \hline 2 \rightarrow \text{Remainder} \end{array} \right.$$

$$Q = 265, R = 2$$

$$(d) 26 \overline{) 5937} \left(\begin{array}{r} 228 \rightarrow \text{Quotient} \\ -52 \downarrow \\ \hline 73 \\ -52 \downarrow \\ \hline 217 \\ -208 \downarrow \\ \hline 9 \rightarrow \text{Remainder} \end{array} \right.$$

$$Q = 228, R = 9$$

$$(f) 24 \overline{) 8264} \left(\begin{array}{r} 344 \rightarrow \text{Quotient} \\ -72 \downarrow \\ \hline 106 \\ -96 \downarrow \\ \hline 104 \\ -96 \downarrow \\ \hline 8 \rightarrow \text{Remainder} \end{array} \right.$$

$$Q = 344, R = 8$$

3. (a) $25 \overline{) 317} \left(\begin{array}{r} 12 \rightarrow \text{Quotient} \\ -25 \downarrow \\ \hline 67 \\ -50 \downarrow \\ \hline 17 \rightarrow \text{Remainder} \end{array} \right.$ **Verification :**

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

$$317 = 25 \times 12 + 17$$

$$317 = 300 + 17$$

$$317 = 317$$

Hence verified

$$(b) 31 \overline{) 2190} \left(\begin{array}{r} 70 \\ -217 \downarrow \\ \hline 20 \end{array} \right.$$

$$Q = 70, R = 20$$

Verification :

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

$$2190 = 70 \times 31 + 20$$

$$2190 = 2170 + 20$$

$$2190 = 2190 \quad \text{Hence verified}$$

$$(c) 13 \overline{) 8683} \left(\begin{array}{r} 667 \\ -78 \downarrow \\ \hline 88 \\ -78 \downarrow \\ \hline 103 \\ -91 \downarrow \\ \hline 12 \end{array} \right.$$

Verification :

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

$$8683 = 667 \times 13 + 12$$

$$8683 = 8671 + 12$$

$$8683 = 8683$$

Hence verified

$$Q = 667, R = 12$$

$$(d) 45 \overline{) 7809} \left(\begin{array}{r} 173 \\ -45 \downarrow \\ \hline 330 \\ -315 \downarrow \\ \hline 159 \\ -135 \downarrow \\ \hline 24 \end{array} \right.$$

Verification :

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

$$7809 = 173 \times 45 + 24$$

$$7809 = 7785 + 24$$

$$7809 = 7809$$

Hence verified

$$Q = 173, R = 24$$

$$\begin{array}{r} 11 \overline{) 3399} \left(309 \right. \\ \underline{-33} \downarrow \downarrow \\ 99 \\ \underline{-99} \\ 0 \end{array}$$

$$Q = 309, R = 0$$

$$\begin{array}{r} 58 \overline{) 4296} \left(74 \right. \\ \underline{-406} \downarrow \\ 236 \\ \underline{-232} \\ 4 \end{array}$$

$$Q = 74, R = 4$$

$$\begin{array}{r} 15 \overline{) 14320} \left(954 \right. \\ \underline{-135} \downarrow \downarrow \\ 82 \\ \underline{-75} \downarrow \\ 70 \\ \underline{-60} \\ 10 \end{array}$$

$$Q = 954, R = 10$$

$$\begin{array}{r} 12 \overline{) 25224} \left(2102 \right. \\ \underline{-24} \downarrow \downarrow \downarrow \\ 12 \\ \underline{-12} \downarrow \downarrow \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

$$Q = 2102, R = 0$$

$$\begin{array}{r} 47 \overline{) 59671} \left(1269 \right. \\ \underline{-47} \downarrow \downarrow \downarrow \\ 126 \\ \underline{-94} \downarrow \downarrow \\ 327 \\ \underline{-282} \downarrow \\ 451 \\ \underline{-423} \\ 28 \end{array}$$

$$Q = 1269, R = 28$$

Verification :

Dividend = Quotient \times Divisor + Remainder

$$3399 = 309 \times 11 + 0$$

$$3399 = 3399 + 0$$

$$3399 = 3399$$

Hence verified

Verification :

Dividend = Quotient \times Divisor + Remainder

$$4296 = 74 \times 58 + 4$$

$$4296 = 4292 + 4$$

$$4296 = 4296$$

Hence verified

$$\begin{array}{r} 37 \overline{) 77959} \left(2107 \right. \\ \underline{-74} \downarrow \downarrow \downarrow \\ 39 \\ \underline{-37} \downarrow \downarrow \\ 259 \\ \underline{-259} \\ 0 \end{array}$$

$$Q = 2107, R = 0$$

$$\begin{array}{r} 22 \overline{) 12641} \left(574 \right. \\ \underline{-110} \downarrow \downarrow \downarrow \\ 164 \\ \underline{-154} \downarrow \\ 101 \\ \underline{-88} \\ 13 \end{array}$$

$$Q = 574, R = 13$$

$$\begin{array}{r} 89 \overline{) 25723} \left(289 \right. \\ \underline{-178} \downarrow \downarrow \downarrow \\ 792 \\ \underline{-712} \downarrow \\ 803 \\ \underline{-801} \\ 2 \end{array}$$

$$Q = 289, R = 2$$

$$\begin{array}{r} 34 \overline{) 28477} \left(837 \right. \\ \underline{-272} \downarrow \downarrow \downarrow \\ 127 \\ \underline{-102} \downarrow \\ 257 \\ \underline{-238} \\ 19 \end{array}$$

$$Q = 837, R = 19$$

$$\begin{array}{r} 58 \overline{) 32641} \left(562 \right. \\ \underline{-290} \downarrow \downarrow \downarrow \\ 364 \\ \underline{-348} \downarrow \\ 161 \\ \underline{-116} \\ 45 \end{array}$$

$$Q = 562, R = 45$$

Exercise 7.2

$$1. (a) \begin{array}{r} 10 \overline{) 753} \quad (75 \\ \underline{-70} \\ 53 \\ \underline{-50} \\ 3 \end{array}$$

$$Q = 75, R = 3$$

$$(b) \begin{array}{r} 10 \overline{) 9870} \quad (987 \\ \underline{-90} \\ 87 \\ \underline{-80} \\ 70 \\ \underline{-70} \\ 0 \end{array}$$

$$Q = 987, R = 10$$

$$(c) \begin{array}{r} 1 \overline{) 920} \quad (920 \\ \underline{-9} \\ 2 \\ \underline{-2} \\ 0 \\ \underline{-0} \\ 0 \end{array}$$

$$Q = 920, R = 0$$

$$(d) \begin{array}{r} 100 \overline{) 632} \quad (6 \\ \underline{-60} \\ 32 \end{array}$$

$$Q = 6, R = 32$$

$$(e) \begin{array}{r} 100 \overline{) 5601} \quad (56 \\ \underline{-500} \\ 601 \\ \underline{-600} \\ 1 \end{array}$$

$$Q = 56, R = 1$$

$$(f) \begin{array}{r} 100 \overline{) 92003} \quad (920 \\ \underline{-900} \\ 200 \\ \underline{-200} \\ 3 \end{array}$$

$$Q = 920, R = 3$$

$$(g) \begin{array}{r} 1000 \overline{) 7830} \quad (7 \\ \underline{-7000} \\ 830 \end{array}$$

$$Q = 7, R = 830$$

$$(h) \begin{array}{r} 1000 \overline{) 95028} \quad (95 \\ \underline{-9000} \\ 5028 \\ \underline{-5000} \\ 28 \end{array}$$

$$Q = 95, R = 28$$

$$2. (a) \begin{array}{r} 100 \overline{) 4895} \quad (48 \\ \underline{-400} \\ 895 \\ \underline{-800} \\ 95 \end{array}$$

$$Q = 48, R = 95$$

$$(b) \begin{array}{r} 1000 \overline{) 38492} \quad (38 \\ \underline{-3000} \\ 8492 \\ \underline{-8000} \\ 492 \end{array}$$

$$Q = 38, R = 492$$

$$(c) \begin{array}{r} 10 \overline{) 12868} \quad (1286 \\ \underline{-10} \\ 28 \\ \underline{-20} \\ 86 \\ \underline{-80} \\ 68 \\ \underline{-60} \\ 8 \end{array}$$

$$Q = 1286, R = 8$$

$$(d) \begin{array}{r} 10 \overline{) 48752} \quad (4875 \\ \underline{-40} \\ 87 \\ \underline{-80} \\ 75 \\ \underline{-70} \\ 52 \\ \underline{-50} \\ 2 \end{array}$$

$$Q = 4875, R = 2$$

$$3. \quad (a) \quad 20 \overline{) 6000} \left(\begin{array}{r} 300 \\ -60 \downarrow \downarrow \\ \hline 00 \\ -00 \\ \hline 0 \end{array} \right. \quad (b) \quad 40 \overline{) 8400} \left(\begin{array}{r} 210 \\ -80 \downarrow \downarrow \\ \hline 40 \\ -40 \downarrow \\ \hline 0 \\ \hline 0 \end{array} \right. \quad (c) \quad 90 \overline{) 4200} \left(\begin{array}{r} 46 \\ -360 \downarrow \\ \hline 600 \\ -540 \\ \hline 60 \end{array} \right.$$

$$Q = 300, R = 0$$

$$Q = 210, R = 0$$

$$Q = 46, R = 60$$

$$(d) \quad 30 \overline{) 825} \left(\begin{array}{r} 27 \\ -60 \downarrow \\ \hline 225 \\ -210 \\ \hline 15 \end{array} \right. \quad (e) \quad 30 \overline{) 700} \left(\begin{array}{r} 23 \\ -60 \downarrow \\ \hline 100 \\ -90 \\ \hline 10 \end{array} \right. \quad (f) \quad 40 \overline{) 1640} \left(\begin{array}{r} 41 \\ -160 \downarrow \\ \hline 40 \\ -40 \\ \hline 0 \end{array} \right.$$

$$Q = 27, R = 15$$

$$Q = 23, R = 10$$

$$Q = 41, R = 0$$

$$(g) \quad 40 \overline{) 5250} \left(\begin{array}{r} 131 \\ -40 \downarrow \downarrow \\ \hline 125 \\ -120 \downarrow \\ \hline 50 \\ -40 \\ \hline 10 \end{array} \right. \quad (h) \quad 60 \overline{) 24476} \left(\begin{array}{r} 407 \\ -240 \downarrow \downarrow \\ \hline 476 \\ -420 \\ \hline 56 \end{array} \right.$$

$$Q = 131, R = 10$$

$$Q = 407, R = 56$$

$$4. \quad (a) \quad 10 \overline{) 62} \left(\begin{array}{r} 6 \\ -60 \\ \hline 2 \end{array} \right. \quad (b) \quad 500 \overline{) 50600} \left(\begin{array}{r} 101 \\ -500 \downarrow \downarrow \\ \hline 600 \\ -500 \\ \hline 100 \end{array} \right. \quad (c) \quad 400 \overline{) 5300} \left(\begin{array}{r} 13 \\ -400 \downarrow \\ \hline 1300 \\ -1200 \\ \hline 100 \end{array} \right.$$

$$Q = 6, R = 2$$

$$Q = 101, R = 100$$

$$Q = 13, R = 100$$

$$(d) \quad 700 \overline{) 9200} \left(\begin{array}{r} 13 \\ -700 \downarrow \\ \hline 2200 \\ -2100 \\ \hline 100 \end{array} \right. \quad (e) \quad 900 \overline{) 14500} \left(\begin{array}{r} 16 \\ -900 \downarrow \downarrow \\ \hline 5500 \\ -5400 \\ \hline 100 \end{array} \right. \quad (f) \quad 400 \overline{) 60800} \left(\begin{array}{r} 152 \\ -400 \downarrow \downarrow \\ \hline 2080 \\ -2000 \downarrow \\ \hline 800 \\ -800 \\ \hline 0 \end{array} \right.$$

$$Q = 13, R = 100$$

$$Q = 16, R = 100$$

$$Q = 152, R = 0$$

$$(g) \quad 2000 \overline{) 87000} \left(\begin{array}{r} 43 \\ -8000 \downarrow \\ \hline 7000 \\ -6000 \\ \hline 1000 \end{array} \right. \quad (h) \quad 6000 \overline{) 99000} \left(\begin{array}{r} 16 \\ -6000 \downarrow \\ \hline 39000 \\ -36000 \\ \hline 3000 \end{array} \right.$$

$$Q = 43, R = 1000$$

$$Q = 16, R = 3000$$

Exercise 7.3

$$1. \text{ (a) } 122 \overline{) 732} (6$$

$$\begin{array}{r} -732 \\ \hline 0 \end{array}$$

$$Q = 6, R = 0$$

$$\text{ (b) } 251 \overline{) 4609} (18$$

$$\begin{array}{r} -251 \downarrow \\ \hline 2099 \\ -2008 \\ \hline 91 \end{array}$$

$$Q = 18, R = 91$$

$$\text{ (c) } 416 \overline{) 3790} (9$$

$$\begin{array}{r} -3744 \\ \hline 46 \end{array}$$

$$Q = 9, R = 46$$

$$\text{ (d) } 125 \overline{) 6825} (54$$

$$\begin{array}{r} -625 \downarrow \\ \hline 575 \\ -500 \\ \hline 75 \end{array}$$

$$Q = 54, R = 75$$

$$\text{ (e) } 385 \overline{) 1690} (4$$

$$\begin{array}{r} -1540 \\ \hline 150 \end{array}$$

$$Q = 4, R = 150$$

$$\text{ (f) } 113 \overline{) 8927} (79$$

$$\begin{array}{r} -791 \downarrow \\ \hline 1017 \\ -1017 \\ \hline 0 \end{array}$$

$$Q = 79, R = 0$$

$$\text{ (g) } 431 \overline{) 22843} (53$$

$$\begin{array}{r} -2155 \downarrow \\ \hline 1293 \\ -1293 \\ \hline 0 \end{array}$$

$$Q = 53, R = 0$$

$$\text{ (h) } 854 \overline{) 18788} (22$$

$$\begin{array}{r} -1708 \downarrow \\ \hline 1708 \\ -1708 \\ \hline 0 \end{array}$$

$$Q = 22, R = 0$$

$$2. \text{ (a) } 683 \overline{) 53289} (78$$

$$\begin{array}{r} -4781 \downarrow \\ \hline 5479 \\ -5464 \\ \hline 15 \end{array}$$

$$Q = 78, R = 15$$

$$\text{ (b) } 986 \overline{) 74326} (75$$

$$\begin{array}{r} -6902 \downarrow \\ \hline 5306 \\ -4930 \\ \hline 376 \end{array}$$

$$Q = 75, R = 376$$

$$\text{ (c) } 153 \overline{) 98743} (645$$

$$\begin{array}{r} -918 \downarrow \\ \hline 694 \\ -612 \\ \hline 823 \\ -765 \\ \hline 58 \end{array}$$

$$Q = 645, R = 58$$

$$\text{ (d) } 537 \overline{) 392453} (730$$

$$\begin{array}{r} -3759 \\ \hline 1655 \\ -1611 \\ \hline 443 \end{array}$$

$$Q = 730, R = 443$$

$$\text{ (e) } 775 \overline{) 326054} (420$$

$$\begin{array}{r} -3100 \downarrow \\ \hline 1605 \\ -1550 \\ \hline 554 \end{array}$$

$$Q = 420, R = 554$$

$$\text{ (f) } 362 \overline{) 480961} (1328$$

$$\begin{array}{r} -362 \downarrow \\ \hline 1189 \\ -1086 \\ \hline 1036 \\ -724 \\ \hline 3121 \\ -2896 \\ \hline 225 \end{array}$$

$$Q = 1328, R = 225$$

3. (a) $205 \overline{) 23658} (115$ **Checking :**

$$\begin{array}{r} -205 \downarrow \\ \underline{315} \\ -205 \downarrow \\ \underline{1108} \\ -1025 \\ \underline{83} \end{array}$$

Dividend = Quotient \times Divisor + Remainder
 $23658 = 115 \times 205 + 83$
 $23658 = 23575 + 83$
 $23658 = 23658$
Hence verified

Q = 115, R = 83

(b) $784 \overline{) 84802} (108$ **Checking :**

$$\begin{array}{r} -784 \downarrow \downarrow \\ \underline{6402} \\ -6272 \\ \underline{130} \end{array}$$

Dividend = Quotient \times Divisor + Remainder
 $84802 = 108 \times 784 + 130$
 $84802 = 84672 + 130$
 $84802 = 84802$
Hence verified

Q = 108, R = 130

(c) $314 \overline{) 91624} (291$ **Checking :**

$$\begin{array}{r} -628 \downarrow \\ \underline{2882} \\ -2826 \downarrow \\ \underline{564} \\ -314 \\ \underline{250} \end{array}$$

Dividend = Quotient \times Divisor + Remainder
 $91624 = 291 \times 314 + 250$
 $91624 = 91374 + 250$
 $91624 = 91624$
Hence verified

Q = 291, R = 250

(d) $485 \overline{) 99000} (204$ **Checking :**

$$\begin{array}{r} -970 \downarrow \downarrow \\ \underline{2000} \\ -1940 \\ \underline{60} \end{array}$$

Dividend = Quotient \times Divisor + Remainder
 $99000 = 204 \times 485 + 60$
 $99000 = 98940 + 60$
 $99000 = 99000$
Hence verified

Q = 204, R = 60

Exercise-7.4

1. (a) In order to do such sums, take the following steps :
- Step 1 : First complete all 'of' operations.
- Step 2 : Next do the division (\div)
- Step 3 : Now do the multiplications (\times).
- Step 4 : (i) Add the numbers with '+' signs. The first number in the sum does not have a sign. It is considered to have '+' signs.
- (ii) Add the numbers with '-' signs.
- Step 5 : Subtract the two sums found in step 4 and get the simplified number.

$$\begin{aligned}
 &= 220 + 24 \times 60 - 1089 \div 99 \\
 &= 220 + 24 \times 60 - 11 \quad [\because 1089 \div 99 = 11] \\
 &= 220 + 1440 - 11 \quad [\because 24 \times 60 = 1440] \\
 &= 1660 - 11 \quad [\because 220 + 1440 = 1660] \\
 &= 1649
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad &6240 \div 4 \times 20 + 18 - 52 \\
 &= 1560 \times 20 + 18 - 52 \quad [\because 6240 \div 4 = 1560] \\
 &= 31200 + 18 - 52 \quad [\because 1560 \times 20 = 31200] \\
 &= 31218 - 52 \quad [\because 31200 + 18 = 31218] \\
 &= 31166 \quad [\because 31218 - 52 = 31166]
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad &1665 \times 8 \div 5 \\
 &= 1665 \times 1.6 \quad [\because 8 \div 5 = 1.6] \\
 &= 2664 \quad [\because 1665 \times 1.6 = 2664]
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad &4321 + 312 \times 16 \div 8 - 164 \\
 &= 4321 + 312 \times 2 - 164 \quad [\because 16 \div 8 = 2] \\
 &= 4321 + 624 - 164 \quad [\because 312 \times 2 = 624] \\
 &= 4945 - 164 \quad [\because 4321 + 624 = 4945] \\
 &= 4781 \quad [\because 4945 - 164 = 4781]
 \end{aligned}$$

$$\begin{aligned}
 \text{(e)} \quad &3600 \div 90 \times 9 + 5 \times 24 - 120 \div 6 \\
 &= 40 \times 9 + 5 \times 24 - 20 \quad [\because 3600 \div 90 = 40, 120 \div 6 = 20] \\
 &= 360 + 120 - 20 \quad [\because 40 \times 9 = 360, 5 \times 24 = 120] \\
 &= 480 - 20 \quad [\because 360 + 120 = 480] \\
 &= 460 \quad [\because 480 - 20 = 460]
 \end{aligned}$$

$$\begin{aligned}
 \text{(f)} \quad &8000 + 2000 \div 20 \text{ of } 5 - 1500 \\
 &= 8000 + 2000 \div 100 - 1500 \quad [\because 20 \text{ of } 5 = 100] \\
 &= 8000 + 20 - 1500 \quad [\because 2000 \div 100 = 20] \\
 &= 8020 - 1500 \quad [\because 8000 + 20 = 8020] \\
 &= 6520 \quad [\because 8020 - 1500 = 6520]
 \end{aligned}$$

$$\begin{aligned}
 \text{(g)} \quad &840 + 16 \div 4 - 280 \div 10 + 53 \\
 &= 840 + 4 - 28 + 53 \quad [\because 16 \div 4 = 4, 280 \div 10 = 28] \\
 &= 897 - 28 \quad [\because 840 + 4 + 53 = 897] \\
 &= 869 \quad [\because 897 - 28 = 869]
 \end{aligned}$$

$$\begin{aligned}
 \text{(h)} \quad &6512 - 798 \times 3 \div 3 - 7 \text{ of } 8 \\
 &= 6512 - 798 \times 3 \div 3 - 56 \quad [\because 7 \text{ of } 8 = 56] \\
 &= 6512 - 798 \times 1 - 56 \quad [\because 3 \div 3 = 1] \\
 &= 6512 - 798 - 854 \quad [\because 798 \times 1 = 798] \\
 &= 6512 - 854 \quad [\because 798 + 56 = 854] \\
 &= 5658 \quad [\because 6512 - 854 = 5658]
 \end{aligned}$$

Exercise-7.5

1. (a) The greatest 4-digit number = 9999

$9999 \div 73$	$9999 \div 36$	$9999 \div 85$	$9999 \div 24$
$73 \overline{) 9999} \left(\begin{array}{r} 136 \\ -73 \downarrow \\ \hline 269 \\ -219 \downarrow \\ \hline 509 \\ -438 \downarrow \\ \hline 71 \end{array} \right.$	$36 \overline{) 9999} \left(\begin{array}{r} 277 \\ -72 \downarrow \\ \hline 279 \\ -252 \downarrow \\ \hline 27 \end{array} \right.$	$85 \overline{) 9999} \left(\begin{array}{r} 117 \\ -85 \downarrow \\ \hline 149 \\ -85 \downarrow \\ \hline 649 \\ -595 \downarrow \\ \hline 54 \end{array} \right.$	$24 \overline{) 9999} \left(\begin{array}{r} 416 \\ -96 \downarrow \\ \hline 39 \\ -24 \downarrow \\ \hline 159 \\ -144 \downarrow \\ \hline 15 \end{array} \right.$

$$Q = 136, R = 70 \quad Q = 277, R = 27 \quad Q = 117, R = 54 \quad Q = 416, R = 15$$

- (b) The smallest 4-digit number = 1000

$1000 \div 72$	$1000 \div 65$	$1000 \div 30$	$1000 \div 25$
$72 \overline{) 1000} \left(\begin{array}{r} 13 \\ -72 \downarrow \\ \hline 280 \\ -216 \downarrow \\ \hline 64 \end{array} \right.$	$65 \overline{) 1000} \left(\begin{array}{r} 15 \\ -65 \downarrow \\ \hline 350 \\ -325 \downarrow \\ \hline 25 \end{array} \right.$	$30 \overline{) 1000} \left(\begin{array}{r} 33 \\ -90 \downarrow \\ \hline 100 \\ -90 \downarrow \\ \hline 10 \end{array} \right.$	$25 \overline{) 1000} \left(\begin{array}{r} 40 \\ -100 \downarrow \\ \hline 00 \\ \hline 00 \end{array} \right.$

$$Q = 13, R = 64 \quad Q = 15, R = 25 \quad Q = 33, R = 10 \quad Q = 40, R = 0$$

- (c) The greatest 3-digit number = 999

$999 \div 68$	$999 \div 18$	$999 \div 34$	$999 \div 45$
$68 \overline{) 999} \left(\begin{array}{r} 14 \\ -68 \downarrow \\ \hline 319 \\ -272 \downarrow \\ \hline 47 \end{array} \right.$	$18 \overline{) 999} \left(\begin{array}{r} 55 \\ -90 \downarrow \\ \hline 99 \\ -90 \downarrow \\ \hline 9 \end{array} \right.$	$34 \overline{) 999} \left(\begin{array}{r} 29 \\ -68 \downarrow \\ \hline 319 \\ -306 \downarrow \\ \hline 13 \end{array} \right.$	$45 \overline{) 999} \left(\begin{array}{r} 22 \\ -90 \downarrow \\ \hline 99 \\ -90 \downarrow \\ \hline 9 \end{array} \right.$

$$Q = 14, R = 47 \quad Q = 55, R = 9 \quad Q = 29, R = 13 \quad Q = 22, R = 9$$

2. 6288 flowers are packed in crates = 8

$$\text{Each crates have flowers} = 8 \overline{) 6288} \left(\begin{array}{r} 786 \\ -56 \\ \hline 68 \\ -64 \\ \hline 48 \\ -48 \\ \hline 0 \end{array} \right.$$

Thus, each crates wil have 786 flowers.

3. 7 tables cost = ₹8085

$$\begin{array}{r}
 1 \text{ table cost} = 7 \overline{) 8085} \left(1155 \\
 \underline{-7} \downarrow \\
 10 \\
 \underline{-7} \downarrow \\
 38 \\
 \underline{-35} \downarrow \\
 35 \\
 \underline{-35} \\
 \hline
 \times
 \end{array}$$

Thus, one table cost = ₹1155.

4. 3696 tins are packed in 7 containers

$$\begin{array}{r}
 \text{Each container have number of tins} = 7 \overline{) 3696} \left(528 \\
 \underline{-35} \downarrow \\
 19 \\
 \underline{-14} \downarrow \\
 56 \\
 \underline{-56} \\
 \hline
 \times
 \end{array}$$

Thus, each container have 528 number of tins.

5. 23 shirts cost = ₹ 8832

$$\begin{array}{r}
 1 \text{ shirt cost} = 23 \overline{) 8832} \left(384 \\
 \underline{-69} \downarrow \\
 193 \\
 \underline{-184} \downarrow \\
 92 \\
 \underline{-92} \\
 \hline
 \times
 \end{array}$$

Thus, each shirt cost ₹ 384.

CHECK YOURSELF

1. to 4. As per answersheet.

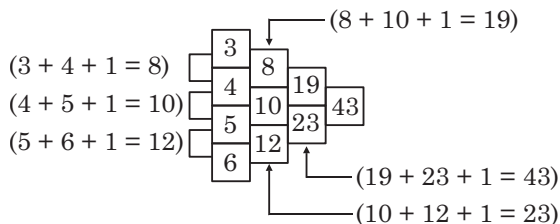
8. Patterns**Exercise-8**

1.	1	2	3	4	5	6	7	8	9	10	11	12	13
	14	15	16	17	18	19	20	21	22	23	24	25	26
	27	28	29	30	31	32	33	34	35	36	37	38	39
	40	41	42	43	44	45	46	47	48	49	50	51	52

Multiples of 4 are those number which are divisible by 4.

4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48 and 52 are multiples of 4.

2. (a)



(b) $16 - 3 = 13, 13 - 3 = 10, 10 - 3 = 7$

$18 - 3 = 15, 15 - 3 = 12, 12 - 3 = 9$

$20 - 3 = 17, 17 - 3 = 14, 14 - 3 = 11$

$22 - 3 = 19, 19 - 3 = 16, 16 - 3 = 13$

$24 - 3 = 21, 21 - 3 = 18, 18 - 3 = 15$

$26 - 3 = 23, 23 - 3 = 20, 20 - 3 = 17$

16	18	20	22	24	26
13	15	17	19	21	23
10	12	14	16	18	20
7	9	11	13	15	17

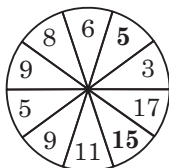
3. (a) $6 \times 2 - 1 = 11$

$5 \times 2 - 1 = 9$

$3 \times 2 - 1 = 5$

$9 \times 2 - 1 = 17$

$8 \times 2 - 1 = 15$



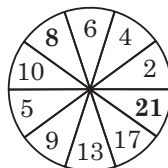
(b) $6 \times 2 + 1 = 13$

$4 \times 2 + 1 = 9$

$2 \times 2 + 1 = 5$

$10 \times 2 + 1 = 21$

$8 \times 2 + 1 = 17$



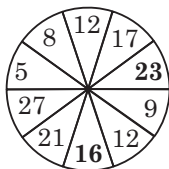
(c) $5 + 4 = 9$

$8 + 4 = 12$

$12 + 4 = 16$

$17 + 4 = 21$

$23 + 4 = 27$



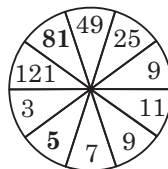
(d) $7 \times 7 = 49$

$5 \times 5 = 25$

$3 \times 3 = 9$

$11 \times 11 = 121$

$9 \times 9 = 81$



4. $1 + \boxed{2} + \boxed{3} + 4 = 10$

$2 + 3 \quad 5 \times 2 \quad 10$

$2 + \boxed{3} + \boxed{4} + 5 = 14$

$3 + 4 \quad 7 \times 2 \quad 14$

$3 + \boxed{4} + \boxed{5} + 6 = 18$

$4 + 5 \quad 9 \times 2 \quad 18$

$4 + \boxed{5} + \boxed{6} + 7 = 22$

$5 + 6 \quad 11 \times 2 \quad 22$

According to given pattern $74 + \boxed{75} + \boxed{76} + 77 =$

$75 + 76 \quad 151 \times 2 \quad 302$

5. $15 \times 15 = \boxed{2} 25$

$1 \times 1 + 1 = 2$

$25 \times 25 = \boxed{6} 25$

$2 \times 2 + 2 = 6$

$35 \times 35 = \boxed{12} 25$

$3 \times 3 + 3 = 12$

$45 \times 45 = \boxed{20} 25$

$4 \times 4 + 4 = 20$

$55 \times 55 = \boxed{30} 25$

$5 \times 5 + 5 = 30$

$65 \times 65 = \boxed{42} 25$

$6 \times 6 + 6 = 42$

$75 \times 75 = \boxed{56} 25$

$7 \times 7 + 7 = 56$

6. $11 \times 11 = \boxed{12}1$	$1 \times 1 = 1, 1 + 1 = 2$
$21 \times 21 = \boxed{44}1$	$2 \times 2 = 4, 2 + 2 = 4$
$31 \times 31 = \boxed{96}1$	$3 \times 3 = 9, 3 + 3 = 6$
$41 \times 41 = \boxed{168}1$	$4 \times 4 = 16, 4 + 4 = 8$
$51 \times 51 = \boxed{260}1$	$5 \times 5 = 25, 5 + 5 = \textcircled{1}0 = 26$
$61 \times 61 = \boxed{372}1$	$6 \times 6 = 36, 6 + 6 = \textcircled{1}2 = 37$
$81 \times 81 = \boxed{656}1$	$8 \times 8 = 64, 8 + 8 = \textcircled{1}6 = 65$

CHECK YOURSELF

1. (a) $1, 1 + 1 = 2, 2 + 1 = 3, 3 + 1 = 4, 4 + 1 = 5$

Similarly,

$$8 + 1 = \mathbf{9}, 9 + 1 = \mathbf{10}, 10 + 1 = \mathbf{11}, 11 + 1 = \mathbf{12}, 12 + 1 = \mathbf{13}$$

(b) $3, 3 + 3 = 6, 6 + 3 = 9, 9 + 3 = 12, 12 + 3 = 15$

Similarly,

$$21 + 3 = \mathbf{24}, 24 + 3 = \mathbf{27}, 27 + 3 = \mathbf{30}, 30 + 3 = \mathbf{33}, 33 + 3 = \mathbf{36}$$

(c) $25 - 2 = 23, 23 - 2 = 21, 21 - 2 = 19, 19 - 2 = 17$

Similarly,

$$15 - 2 = \mathbf{13}, 13 - 2 = \mathbf{11}, 11 - 2 = \mathbf{9}, 9 - 2 = \mathbf{7}, 7 - 2 = \mathbf{5}$$

(d) $118, 118 - 2 = 116, 116 - 2 = 114, 114 - 2 = 112$

Similarly,

$$108 - 2 = \mathbf{106}, 106 - 2 = \mathbf{104}, 104 - 2 = \mathbf{102}, 102 - 2 = \mathbf{100}, 100 - 2 = \mathbf{98}$$

2. (a) According to given pattern

$$3 + 4 + 5 + 6 = \mathbf{18} \quad [(4 + 5) \times 2 = 18]$$

$$4 + 5 + 6 + 7 = \mathbf{22} \quad [(5 + 6) \times 2 = 22]$$

$$5 + 6 + 7 + 8 = \mathbf{26} \quad [(6 + 7) \times 2 = 26]$$

(b) According to given pattern

$$1 + 3 + 5 + 7 = \mathbf{16} = \mathbf{4 \times 4}$$

$$1 + 3 + 5 + 7 + 9 = \mathbf{25} = \mathbf{5 \times 5}$$

$$1 + 3 + 5 + 7 + 9 + 11 = \mathbf{36} = \mathbf{6 \times 6}$$

(c) According to given pattern (d) According to given pattern

$$88 - 28 = \mathbf{60}$$

$$3 \times 101 = (3 \times 100) + 3 = \mathbf{303}$$

$$87 - 27 = \mathbf{60}$$

$$4 \times 101 = (4 \times 100) + 4 = \mathbf{404}$$

$$86 - 26 = \mathbf{60}$$

$$5 \times 101 = (5 \times 100) + 5 = \mathbf{505}$$

9. Estimation

Exercise 9.1

1. (a) 75 is estimated to 80 to the nearest 10. [\cdot 5 5]
 96 is estimated to 100 to the nearest 10. [\cdot 6 5]
 So, estimated sum = $80 + 100 = 180$
 Actual sum = $75 + 96 = 171$
- (b) 257 is estimated to 260 to the nearest 10. [\cdot 7 5]
 230 is estimated to 230 to the nearest 10. [\cdot 0 5]
 So, estimated sum = $260 + 230 = 490$
 Actual sum = $257 + 230 = 487$
- (c) 310 is estimated to 310 to the nearest 10. [\cdot 0 5]
 67 is estimated to 70 to the nearest 10. [\cdot 0 5]
 So, estimated sum = $310 + 70 = 380$
 Actual sum = $310 + 67 = 377$
- (d) 4182 is estimated to 4180 to the nearest 10. [\cdot 2 5]
 338 is estimated to 340 to the nearest 10. [\cdot 8 5]
 So, estimated sum = $4180 + 340 = 4520$
 Actual sum = $4182 + 338 = 4520$
- (e) 2020 is estimated to 2020 to the nearest 10. [\cdot 0 5]
 6005 is estimated to 6010 to the nearest 10. [\cdot 5 5]
 So, estimated sum = $2020 + 6010 = 8030$
 Actual sum = $2020 + 6005 = 8025$
- (f) 234 is estimated to 230 to the nearest 10. [\cdot 4 5]
 65 is estimated to 70 to the nearest 10. [\cdot 5 5]
 44 is estimated to 40 to the nearest 10. [\cdot 4 5]
 So, estimated sum = $230 + 70 + 40 = 340$
 Actual sum = $234 + 65 + 44 = 343$
2. (a) 438 is estimated to 400 to the nearest 100. [\cdot 38 50]
 534 is estimated to 500 to the nearest 100. [\cdot 34 50]
 So, estimated sum = $400 + 500 = 900$
 Actual sum = $438 + 534 = 972$
- (b) 584 is estimated to 600 to the nearest 100. [\cdot 84 50]
 592 is estimated to 600 to the nearest 100. [\cdot 92 50]
 So, estimated sum = $600 + 600 = 1200$
 Actual sum = $584 + 592 = 1176$

- (c) 3896 is estimated to 3900 to the nearest 100. [\cdot : 96 50]
 760 is estimated to 800 to the nearest 100. [\cdot : 60 50]
 So, estimated sum = $3900 + 800 = 4700$
 Actual sum = $3896 + 760 = 4656$
- (d) 6569 is estimated to 6600 to the nearest 100. [\cdot : 69 50]
 178 is estimated to 200 to the nearest 100. [\cdot : 78 50]
 3594 is estimated to 3600 to the nearest 100. [\cdot : 94 50]
 So, estimated sum = $6600 + 200 + 3600 = 10400$
 Actual sum = $6569 + 178 + 3594 = 10341$
3. (a) 350 is estimated to 400 to the nearest 100. [\cdot : 50 50]
 286 is estimated to 300 to the nearest 100. [\cdot : 86 50]
 So, estimated difference = $400 - 300 = 100$
 Actual difference = $350 - 286 = 64$
- (b) 527 is estimated to 500 to the nearest 100. [\cdot : 27 50]
 293 is estimated to 300 to the nearest 100. [\cdot : 93 50]
 So, estimated difference = $500 - 300 = 200$
 Actual difference = $527 - 293 = 234$
- (c) 6991 is estimated to 7000 to the nearest 100. [\cdot : 91 50]
 2763 is estimated to 2800 to the nearest 100. [\cdot : 63 50]
 3280 is estimated to 3300 to the nearest 100. [\cdot : 80 50]
 So, estimated difference = $7000 - 2800 - 3300$
 $= 4200 - 3300 = 900$
 Actual difference = $6991 - 2763 - 3280$
 $= 4228 - 3280 = 948$
- (d) 2120 is estimated to 2100 to the nearest 100. [\cdot : 20 50]
 126 is estimated to 100 to the nearest 100. [\cdot : 26 50]
 632 is estimated to 600 to the nearest 100. [\cdot : 32 50]
 So, estimated difference = $2100 - 100 - 600$
 $= 2000 - 600 = 1400$
 Actual difference = $2120 - 126 - 632$
 $= 1994 - 632 = 1362$
- (e) 7521 is estimated to 7500 to the nearest 100. [\cdot : 21 50]
 6217 is estimated to 6200 to the nearest 100. [\cdot : 17 50]
 602 is estimated to 600 to the nearest 100. [\cdot : 2 50]
 So, estimated difference = $7500 - 6200 - 600$
 $= 1300 - 600 = 700$
 Actual difference = $7521 - 6217 - 602$
 $= 1304 - 602 = 702$

- (f) 3604 is estimated to 3600 to the nearest 100. [\therefore 04 50]
 234 is estimated to 200 to the nearest 100. [\therefore 34 50]
 580 is estimated to 600 to the nearest 100. [\therefore 80 50]
 So, estimated difference = $3600 - 200 - 600$
 $= 3400 - 600 = 2800$
 Actual difference = $3604 - 234 - 580$
 $= 3370 - 580 = 2790$
4. (a) 7842 is estimated to 8000 to the nearest 1000. [\therefore 842 500]
 6145 is estimated to 6000 to the nearest 1000. [\therefore 145 500]
 So, estimated difference = $8000 - 6000 = 2000$
 Actual difference = $7842 - 6145 = 1697$
- (b) 7621 is estimated to 8000 to the nearest 1000. [\therefore 621 500]
 3202 is estimated to 3000 to the nearest 1000. [\therefore 202 500]
 So, estimated difference = $8000 - 3000 = 5000$
 Actual difference = $7621 - 3202 = 4419$
- (c) 7450 is estimated to 7000 to the nearest 1000. [\therefore 450 500]
 3780 is estimated to 4000 to the nearest 1000. [\therefore 780 500]
 1600 is estimated to 2000 to the nearest 1000. [\therefore 600 500]
 So, estimated difference = $7000 - 4000 - 2000$
 $= 3000 - 2000 = 1000$
 Actual difference = $7450 - 3780 - 1600$
 $= 3670 - 1600 = 2070$
- (d) 9375 is estimated to 9000 to the nearest 1000. [\therefore 375 500]
 6276 is estimated to 6000 to the nearest 1000. [\therefore 276 500]
 1051 is estimated to 1000 to the nearest 1000. [\therefore 51 500]
 So, estimated difference = $9000 - 6000 - 1000$
 $= 3000 - 1000 = 2000$
 Actual difference = $9375 - 6276 - 1051$
 $= 3099 - 1051 = 2048$
- (e) 88099 is estimated to 88000 to the nearest 1000. [\therefore 99 500]
 37108 is estimated to 37000 to the nearest 1000. [\therefore 108 500]
 25961 is estimated to 26000 to the nearest 1000. [\therefore 961 500]
 So, estimated difference = $88000 - 37000 - 26000$
 $= 51000 - 26000 = 25000$
 Actual difference = $88099 - 37108 - 25961$
 $= 50991 - 25961 = 25030$

- (f) 66980 is estimated to 67000 to the nearest 1000. [\therefore 980 500]
 5832 is estimated to 6000 to the nearest 1000. [\therefore 832 500]
 1678 is estimated to 2000 to the nearest 1000. [\therefore 678 500]
 So, estimated difference = $67000 - 6000 - 2000$
 $= 61000 - 2000 = 59000$
 Actual difference = $66980 - 5832 - 1678$
 $= 61148 - 1678 = 59470$

Exercise 9.2

1. (a) 134 is estimated to 100 to the nearest 100. [\therefore 34 50]
 119 is estimated to 100 to the nearest 100. [\therefore 19 50]
 So, the estimated product = $100 \times 100 = 10000$
 - (b) 284 is estimated to 300 to the nearest 100. [\therefore 84 50]
 124 is estimated to 100 to the nearest 100. [\therefore 24 50]
 So, the estimated product = $300 \times 100 = 30000$
 - (c) 792 is estimated to 800 to the nearest 100. [\therefore 92 50]
 315 is estimated to 300 to the nearest 100. [\therefore 15 50]
 So, the estimated product = $800 \times 300 = 240000$.
 - (d) 167 is estimated to 200 to the nearest 100. [\therefore 67 50]
 105 is estimated to 100 to the nearest 100. [\therefore 5 50]
 So, the estimated product = $200 \times 100 = 20000$
 - (e) 455 is estimated to 500 to the nearest 100. [\therefore 55 50]
 233 is estimated to 200 to the nearest 100. [\therefore 33 50]
 So, the estimated product = $500 \times 200 = 100000$
 - (f) 786 is estimated to 800 to the nearest 100. [\therefore 86 50]
 103 is estimated to 100 to the nearest 100. [\therefore 3 50]
 So, the estimated product = $800 \times 100 = 80000$
2. (a) (i) 111 is estimated to 110 to the nearest 10. [\therefore 1 5]
 215 is estimated to 220 to the nearest 10. [\therefore 5 5]
 So, the estimated product = $110 \times 220 = 24200$
 - (ii) 453 is estimated to 450 to the nearest 10. [\therefore 3 5]
 134 is estimated to 130 to the nearest 10. [\therefore 4 5]
 So, the estimated product = $450 \times 130 = 58500$
 - (b) (i) 456 is estimated to 500 to the nearest 100. [\therefore 56 50]
 234 is estimated to 200 to the nearest 100. [\therefore 34 50]
 So, the estimated product = $500 \times 200 = 100000$

(ii) 178 is estimated to 200 to the nearest 100. [$\therefore 78 \ 50$]

289 is estimated to 300 to the nearest 100. [$\therefore 89 \ 50$]

So, the estimated product = 200×300

$$= 60000$$

3. (a) 78 is estimated to 80. So, if the divisor is 6 then the estimated quotient = 13

$$\text{Actual quotient} = 78 \div 6 = 13$$

Thus, the estimated and actual both quotients are same.

Similarly,

- (b) 128 is estimated to 130. So, if the divisor is 8 then the estimated quotient = 16

$$\text{Actual quotient} = 128 \div 8 = 16$$

Thus, the estimated and actual both quotients are same.

- (c) 147 is estimated to 150. So, if the divisor is 7 then the estimated quotient = 21

$$\text{Actual quotient} = 147 \div 7 = 21$$

Thus, the estimated and actual both quotients are same.

- (d) 171 is estimated to 170. So, if the divisor is 9 then the estimated quotient = 18

$$\text{Actual quotient} = 171 \div 9 = 19$$

Thus the estimated and actual both quotients are nearly equal.

- (e) 184 is estimated to 180. So, if the divisor is 8 then the estimated quotient = 22

$$\text{Actual quotient} = 184 \div 8 = 23$$

Thus the estimated and actual both quotients are nearly equal.

- (f) 560 is estimated to 560. So, if the divisor is 5 then the estimated quotient = 112

$$\text{Actual quotient} = 112$$

Thus the estimated and actual both quotients are equal.

- (g) 2568 is estimated to 2570. So, if the divisor is 12 then the estimated quotient = 214

$$\text{Actual quotient} = 2568 \div 12 = 214$$

Thus the estimated and actual both quotients are equal.

- (h) 1602 is estimated to 1600. So, if the divisor is 18 then the estimated quotient = 88

$$\text{Actual quotient} = 89$$

Thus the estimated and actual both quotients are nearly equal.

4. (a) $2, 2 \times 2 = 4, 4 \times 2 = 8, 8 \times 2 = 16, 16 \times 2 = 32, 32 \times 2 = 64, 64 \times 2 = 128, 128 \times 2 = 256, 256 \times 2 = 512.$
- (b) $3, 3 \times 2 = 6, 6 \times 2 = 12, 12 \times 2 = 24, 24 \times 2 = 48, 48 \times 2 = 96, 96 \times 2 = 192, 192 \times 2 = 384, 384 \times 2 = 768.$
- (c) $29, 29 + 5 = 34, 34 + 5 = 39, 39 + 5 = 44, 44 + 5 = 49, 49 + 5 = 54, 54 + 5 = 59, 59 + 5 = 64, 64 + 5 = 69$
- (d) $9, 9 \times 3 = 27, 27 \times 3 = 81, 81 \times 3 = 243, 243 \times 3 = 729, 729 \times 3 = 2187, 2187 \times 3 = 6561, 6561 \times 3 = 19683, 19683 \times 3 = 59049$

CHECK YOURSELF

As per answersheet.

10. Multiples and Factors

Exercise 10.1

1. (a) The first five multiples of 7 can be obtained by multiplying 7, by 1, 2, 3, 4 and 5. So,
 $7 \times 1 = 7, 7 \times 2 = 14, 7 \times 3 = 21, 7 \times 4 = 28, 7 \times 5 = 35$
 Solve as Q.No. (a).
- (b) The first five multiples of 14.
 $14 \times 1 = 14, 14 \times 2 = 28, 14 \times 3 = 42, 14 \times 4 = 56, 14 \times 5 = 70$
- (c) The first five multiples of 9.
 $9 \times 1 = 9, 9 \times 2 = 18, 9 \times 3 = 27, 9 \times 4 = 36, 9 \times 5 = 45$
2. (a) Multiples of 5 = 5, 10, 15, 20, 25, 30, **35**, 40, 45, 50, 55, 60, 65, **70**...
 Multiples of 7 = 7, 14, 21, 28, **35**, 42, 49, 56, 63, **70**, 77,
 So, two common multiples of 5 and 7 = 35, 70
- (b) Multiples of 4 : 4, 8, 12, **16**, 20, **24**, 28, **32**,
 Multiples of 8 : **8**, **16**, **24**, **32**, 40,
 So, two common multiples of 4 and 8 = 8, 16
- (c) Multiples of 3 : 3, 6, 9, 12, 15, **18**, 21, 24, 27, 30, 33, **36**, 39, 42,.....
 Multiples of 6 : 6, 12, **18**, 24, 30, **36**, 42, 48, 54, 60,.....
 Multiples of 9 : 9, **18**, 27, **36**, 45, 54, 63, 72, 90,.....
 So, two common multiples of 3, 6 and 9 = 18, 36
3. (a) Only 21 and 30 are not divisible by four among the given numbers. So, **21, 30** are not the multiples of 4.
- (b) Only 20, 32 and 40 are not divisible by six among the given numbers. So, **20, 32, 40** are not the multiples of 6.
- (c) Only 38, 44 and 64 are not divisible by nine among the given numbers. So, **38, 44, 64** are not the multiples of 9.

4. (a) Yes, because 90 is divisible by 5 leaving no remainder behind.
So, 90 is the multiple of 5.
- (b) No, because 124 is not divisible by 3. So, 124 is not the multiple of 3.
- (c) Yes, because 152 is divisible by 8 leaving no remainder behind.
So, 152 is the multiple of 8.

Exercise 10.2

1. Refer to the properties of factors on textbook page 72.

2. (a) Factors of 15 = 1, 3, **5**, 15
Factors of 20 = 1, 2, 4, **5**, 10, 20
So, the common factor of 15 and 20 = 5
- (b) Factors of 15 = 1, 3, **5**, 15
Factors of 25 = 1, **5**, 25
So, the common factor of 15 and 25 = 5
- (c) Factors of 18 = 1, **2**, **3**, **6**, 9, 18
Factors of 30 = 1, **2**, **3**, 5, **6**, 10, 15, 30
So, the common factor of 18 and 30 = 2, 3, 6
- (d) Factors of 14 = 1, **2**, 7, 14
Factors of 38 = 1, **2**, 19, 38
So, the common factor of 14 and 38 = 2
- (e) Factors of 25 = 1, **5**, 25
Factors of 30 = 1, 2, 3, **5**, 6, 10, 15, 30
So, the common factor of 25 and 30 = 5
- (f) Factors of 28 = 1, **2**, **4**, 7, 14, 28
Factors of 24 = 1, **2**, 3, **4**, 6, 8, 12, 24
So, the common factor of 28 and 24 = 2, 4
- (g) Factors of 30 = 1, **2**, 3, 5, 6, 10, 15, 30
Factors of 32 = 1, **2**, 4, 8, 16, 32
So, the common factor of 30 and 32 = 2
- (h) Factors of 56 = 1, **2**, **4**, 7, 8, 14, 28, 56
Factors of 20 = 1, **2**, 4, 5, 10, 20
So, the common factor of 56 and 20 = 2, 4.

3. $8 \overline{)1296} (162$

$$\begin{array}{r}
 \underline{-8} \downarrow \\
 49 \\
 \underline{-48} \downarrow \\
 16 \\
 \underline{-16} \\
 \hline
 \times
 \end{array}$$

Thus, 1296 is divisible by 8 leaving no remainder behind so, we can say that 8 is the factor of 1296.

4. 24 is divisible by 1, 2, 3, 4, 6, 8, 12 and 24. So, we can say that these are the factors of 24.
5. From the properties of factors we know that 1 is the factor of every number.
So, the smallest factor of all the numbers = 1.
From the properties of factors we know that every non-zero number is the greatest factor of itself.
So, the greatest factor of all the numbers = number itself.
- (a) Smallest factor = 1
Greatest factor = 13
- (b) Smallest factor = 1
Greatest factor = 16
- (c) Smallest factor = 1
Greatest factor = 25
- (d) Smallest factor = 1
Greatest factor = 24
- (e) Smallest factor = 1
Greatest factor = 39
6. (a) 72 is divisible by 9 leaving no remainder behind. So, we can say that 9 is the factor of 72. So, the statement is **True**.
- (b) 150 is divisible by 15 leaving no remainder behind. So, we can say that 15 is the factor of 150. So, the statement is **True**.
- (c) 82 is not divisible by 8. So, we can say that 8 is not the factor of 82. So, the statement is **False**.
7. (a) 27 is divisible by 1, 3, 9, 27.
So, the factors of 27 = 1, 3, 9, 27.
- (b) 42 is divisible by 1, 2, 3, 6, 7, 14, 21, 42
So, the factors of 42 = 1, 2, 3, 6, 7, 14, 21, 42.
- (c) 54 is divisible by 1, 2, 3, 6, 9, 18, 27, 54
So, the factors of 54 = 1, 2, 3, 6, 9, 18, 27, 54.
- (d) 16 is divisible by 1, 2, 4, 8, 16
So, the factors of 16 = 1, 2, 4, 8, 16.
- (e) 81 is divisible by 1, 3, 9, 27, 81
So, the factors of 81 = 1, 3, 9, 27, 81.
- (f) 55 is divisible by 1, 5, 11, 55
So, the factors of 55 = 1, 5, 11, 55.
- (g) 63 is divisible by 1, 3, 7, 9, 21, 63
So, the factors of 63 = 1, 3, 7, 9, 21, 63.
- (h) 72 is divisible by 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
So, the factors of 72 = 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72.
8. (a) 32 is not divisible by 3. So, we can say that 3 is not the factor of 32.

- (b) 440 is divisible by 5. So, we can say that 5 is the factor of 440.
- (c) 169 is divisible by 13. So, we can say that 13 is the factor of 169.
- (d) 278 is not divisible by 8. So, we can say that 8 is not the factor of 278.
- (e) 188 is not divisible by 8. So, we can say that 8 is not the factor of 188.
- (f) 240 is divisible by 16. So, we can say that 16 is the factor of 240.
- (g) 186 is not divisible by 19. So, we can say that 19 is not the factor of 186.
- (h) 396 is divisible by 12. So, we can say that 12 is the factor of 396.

Exercise 10.3

1. Refer to the test of divisibility on textbook page 74.
2. (a) We know that a number is divisible by 2 if the digit in the ones place is an even digit i.e., the digit in the ones place is 0, 2, 4, 6 or 8. Here **14, 30, 42, 56** and **68** have even numbers on ones digit place. So, these are divisible by 2.
(b) We know that a number is divisible by 3 if the sum of the digits of the number is a multiple of 3. Here the sum of digits in **39, 45, 57, 69** and **78** is multiple of 3. So, these numbers are divisible by 3.
(c) We know that, a number is divisible by 5 if the digits in the ones place is either 5 or 0. Here the numbers **35, 50, 70, 90** and **95** have either 5 or 0. So, these numbers are divisible by 5.
(d) We know that a number is divisible by 10 if the digit in the ones place is 0. Here **60, 110** and **180** has 0 at ones digit place. So, these numbers are divisible by 10.
3. (a) 34 is divisible by only 2 among the given numbers. So, 2 is the factor of 34.
(b) 50 is divisible by 2, 5 and 10 among the given numbers. So, 2, 5, 10 are the factors of 50.
(c) 95 is divisible only by 5 among the given numbers. So, 5 is the factor of 95.
(d) 60 is divisible by 2, 3, 5 and 10. So, 2, 3, 5 and 10 are the factors of 60.
(e) 78 is divisible by 2 and 3 among the given numbers. So, 2 and 3 are the factors of 78.
(f) 75 is divisible by 3 and 5 among the given numbers. So, **3** and **5** are the factors of 75.

4. (a) The numbers between 35 and 55 which are divisible by 2 are **36, 38, 40, 42, 44, 46, 48, 50, 52, 54.**
 - (b) The numbers between 35 and 55 which are divisible by 5 are **40, 45, 50.**
 - (c) The numbers between 35 and 55 which are divisible by **10** are **40, 50.**
 - (d) The numbers between 35 and 55 which are divisible by 2 as well as 5 are **40, 50.**
 - (e) The numbers between 35 and 55 which are divisible by 5 as well as 10 are **40, 50.**
 - (f) The numbers between 35 and 55 which are divisible by 2 as well as 3 are **36, 42, 48, 54.**
5. Refer to the tests of divisibility on text book page 74.
 6. A number is divisible by 11 if the difference between the sum of its alternate digits is either zero or divisible by 11.

Exercise-10.4

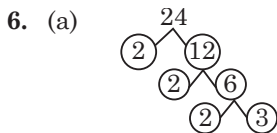
1. The numbers **2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47** have only two factors 1 and the numbers itself so these are the prime numbers less than 50.
 2. The numbers 32, 33, 34, 35, 36, 38, 39, 40, 42, 44, 45, 46, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 60, 62, 63, 64, 65, 66, 68 and 69 have more than two factors so these are the composite numbers between 30 and 70.
 3. As per answersheet.
4. (a)
$$\begin{array}{r} 13 \\ + 15 \\ \hline 28 \end{array}$$

28 is an even number.
 - (b)
$$\begin{array}{r} 20 \\ + 60 \\ \hline 80 \end{array}$$

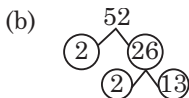
80 is an even number.
 - (c)
$$\begin{array}{r} \square \\ 33 \\ + 47 \\ \hline 80 \end{array}$$

80 is an even number.
5. (a) 67 does not have more than two factors. So, we can say that 67 is a prime number.
 - (b) 71 does not have more than two factors. So, we can say that 71 is a prime number.
 - (c) 97 does not have more than two factors. So, we can say that 97 is a prime number.
 - (d) 123 have more than two factors. So, we can say that 123 is a composite number.
 - (e) 113 does not have more than two factors. So, we can say that 113 is a prime number.

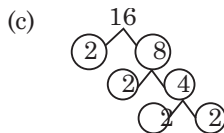
(f) 125 have more than two factors. So we can say that 125 is a composite number.



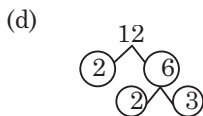
The prime factors of 24 are
 $2 \times 2 \times 2 \times 3$



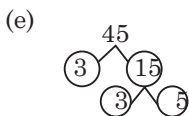
The prime factors of 52 are
 $2 \times 2 \times 13$



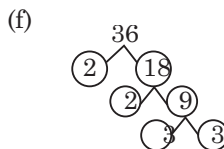
The prime factors of 16 are
 $2 \times 2 \times 2 \times 2$



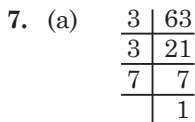
The prime factors of 12 are
 $2 \times 2 \times 3$



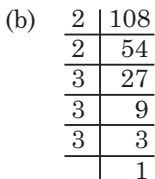
The prime factors of 45 are
 $3 \times 3 \times 5$



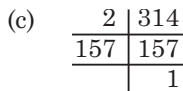
The prime factors of 36 are
 $2 \times 2 \times 3 \times 3$



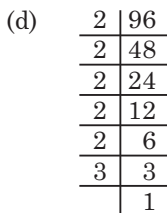
Thus, the prime factors of 63
 $= 3 \times 3 \times 7$



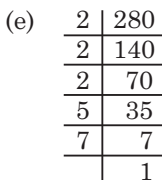
Thus, the prime factors of 108
 $= 2 \times 2 \times 3 \times 3 \times 3$



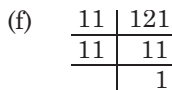
Thus, the prime factors of 314
 $= 2 \times 157$



Thus, the prime factors of 96
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 3$



Thus, the prime factors of 280
 $= 2 \times 2 \times 2 \times 5 \times 7$



Thus, the prime factors of 121
 $= 11 \times 11$

CHECK YOURSELF

1. to 4. As per answersheet

11. HCF and LCM**Exercise 11.1**

1. (a) For finding HCF by the inspection method we need to find the multiplication tables of those numbers in which all the given numbers occur.
6 occurs in the multiplication tables of 2, 3 and **6**.
42 occurs in the multiplication tables of 2, 3, **6**, 7, 14, 21 and 42.
Here, 6 is the greatest number.
6 is the HCF of 6 and 42.
Solve as Q.No. (a).
- (b) 9 occurs in the multiplication tables of 3 and **9**.
27 occurs in the multiplication tables of 3, **9** and 27.
Here, 9 is the greatest number.
9 is the HCF of 9 and 27.
- (c) 3 occurs in the multiplication table of 3 only.
9 occurs in the multiplication tables of **3** and 9.
Here, 3 is the greatest number.
3 is the HCF of 3 and 9.
- (d) 8 occurs in the multiplication tables of 2, **4** and 8.
12 occurs in the multiplication tables of 2, 3, **4**, 6 and 12.
Here, 4 is the greatest number.
4 is the HCF of 8 and 12.
- (e) 22 occurs in the multiplication tables of 2, **11** and 22.
33 occurs in the multiplication tables of 3, **11** and 33.
Here, 11 is the greatest number.
11 is the HCF of 22 and 33.
- (f) 20 occurs in the multiplication tables of 2, 4, 5, 10 and **20**.
40 occurs in the multiplication tables of 2, 4, 5, 8, 10, **20** and 40.
Here, 20 is the greatest number.
20 is the HCF of 20 and 40.
- (g) 11 occurs in the multiplication table of **11** only.
121 occurs in the multiplication tables of **11** and 121.
Here, 11 is the greatest number.
11 is the HCF of 11 and 121.
- (h) 10 occurs in the multiplication table of 2, **5** and 10.
25 occurs in the multiplication tables of **5** and 25.
Here, 5 is the greatest number.
5 is the HCF of 10 and 25.

2. (a) Factors of 18 = 1, 2, 3, 6, 9, 18
Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24
Common factors = 1, 2, 3, 6
6 is the HCF of 18 and 24.
- (b) Factors of 35 = 1, 5, 7, 35
Factors of 45 = 1, 3, 5, 9, 15, 45
Common factors = 1, 5
5 is the HCF of 35 and 45.
- (c) Factors of 54 = 1, 2, 3, 6, 9, 18, 27, 54
Factors of 63 = 1, 3, 7, 9, 21, 63
Common factors = 1, 3, 9
9 is the HCF of 54 and 63.
- (d) Factors of 16 = 1, 2, 4, 8, 16
Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24
Factors of 40 = 1, 2, 4, 5, 8, 10, 20, 40
Common factors = 1, 2, 4, 8.
8 is the HCF of 16, 24 and 40.
- (e) Factors of 112 = 1, 2, 4, 7, 8, 14, 16, 28, 56, 112
Factors of 210 = 1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, 210
Factors of 252 = 1, 2, 3, 4, 6, 7, 9, 12, 14, 18, 21, 28, 36, 42, 63, 84, 126, 252
Common factors = 1, 2, 7, 14
14 is the HCF of 112, 210 and 252.
- (f) Factors of 84 = 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
Factors of 90 = 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90
Factors of 126 = 1, 2, 3, 6, 7, 9, 14, 18, 21, 42, 63, 136
Common factors = 1, 2, 3, 6
6 is the HCF of 84, 90 and 126.
- (g) Factors of 21 = 1, 3, 7, 21
Factors of 63 = 1, 3, 7, 9, 21, 63
Factors of 60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
Common factors = 1, 3
3 is the HCF of 21, 63 and 60.
- (h) Factors of 42 = 1, 2, 3, 6, 7, 14, 21, 42
Factors of 84 = 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
Factors of 147 = 1, 3, 7, 21, 49, 147
Common factors = 1, 3, 7, 21
21 is the HCF of 42, 84 and 147.

$$3. (a) \begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

$$45 = 3 \times 3 \times 5$$

$3 \times 3 = 9$ is the HCF
of 36 and 45.

$$(c) \begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 63 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

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

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

$3 \times 3 = 9$ is the HCF
of 36 and 63.

$$(e) \begin{array}{r|l} 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$15 = 3 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$35 = 5 \times 7$$

5 is the HCF of
15, 20 and 35.

$$(g) \begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 108 \\ \hline 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

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

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

$$108 = 2 \times 2 \times 3 \times 3 \times 3$$

$2 \times 3 \times 3 = 18$ is the HCF
of 36, 90 and 108.

$$(b) \begin{array}{r|l} 2 & 48 \\ \hline 2 & 24 \\ \hline 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 72 \\ \hline 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

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

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

$2 \times 2 \times 2 \times 3 = 24$ is the HCF
of 48 and 72.

$$(d) \begin{array}{r|l} 2 & 72 \\ \hline 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

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

$2 \times 3 \times 3 = 18$ is the HCF of
72 and 90.

$$(f) \begin{array}{r|l} 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 75 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 105 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$45 = 3 \times 3 \times 5$$

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

$$105 = 3 \times 5 \times 7$$

$3 \times 5 = 15$ is the HCF of
45, 75 and 105.

$$(h) \begin{array}{r|l} 3 & 63 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 84 \\ \hline 2 & 42 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 126 \\ \hline 3 & 63 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

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

$$84 = 2 \times 2 \times 3 \times 7$$

$$126 = 2 \times 3 \times 3 \times 7$$

$3 \times 7 = 21$ is the HCF of
63, 84 and 126.

4. (a) For finding the HCF of the given numbers we divide the greater number by the smaller one.

$$\begin{array}{r}
 112 \overline{) 210} (1 \\
 \underline{-112} \\
 98 \overline{) 112} (1 \\
 \underline{-98} \\
 14 \overline{) 98} (7 \\
 \underline{-14 \times 7} \\
 0
 \end{array}$$

14 is the last divisor.

Now divide 252 by 14.

$$\begin{array}{r}
 14 \overline{) 252} (18 \\
 \underline{-252} \\
 0
 \end{array}$$

So, 14 is the HCF of 112, 210 and 252.

$$\begin{array}{r}
 \text{(b) } 84 \overline{) 90} (1 \\
 \underline{-84} \\
 6 \overline{) 84} (14 \\
 \underline{-84} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 6 \overline{) 126} (21 \\
 \underline{-126} \\
 0
 \end{array}$$

So, 6 is the HCF of 84, 90 and 126.

$$\begin{array}{r}
 \text{(c) } 60 \overline{) 72} (1 \\
 \underline{-60} \\
 12 \overline{) 60} (5 \\
 \underline{-60} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 12 \overline{) 84} (7 \\
 \underline{-84} \\
 0
 \end{array}$$

So, 12 is the HCF of 60, 72 and 84.

$$\begin{array}{r}
 \text{(d) } 12 \overline{) 32} (2 \\
 \underline{-24} \\
 8 \overline{) 12} (1 \\
 \underline{-8} \\
 4 \overline{) 8} (2 \\
 \underline{-8} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 4 \overline{) 36} (9 \\
 \underline{-36} \\
 0
 \end{array}$$

So, 4 is the HCF of 12, 32 and 36.

$$\begin{array}{r}
 \text{(e) } 24 \overline{) 40} (1 \\
 \underline{-24} \\
 16 \overline{) 24} (1 \\
 \underline{-16} \\
 8 \overline{) 16} (2 \\
 \underline{-16} \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 8 \overline{) 56} (7 \\
 \underline{-56} \\
 0
 \end{array}$$

So, 8 is the HCF of 24, 40 and 56.

$$\begin{array}{r} \text{(f) } 42 \overline{)147} \text{ (3} \\ \underline{-126} \\ 21 \overline{)42} \text{ (2} \\ \underline{-42} \\ 0 \end{array}$$

$$\begin{array}{r} 21 \overline{)84} \text{ (4} \\ \underline{-84} \\ 0 \end{array}$$

So, 21 is the HCF of 42, 147 and 84.

$$\begin{array}{r} \text{(g) } 18 \overline{)24} \text{ (1} \\ \underline{-18} \\ 6 \overline{)18} \text{ (3} \\ \underline{-18} \\ 0 \end{array}$$

$$\begin{array}{r} 6 \overline{)30} \text{ (5} \\ \underline{-30} \\ 0 \end{array}$$

So, 6 is the HCF of 18, 24 and 30.

$$\begin{array}{r} \text{(h) } 42 \overline{)56} \text{ (1} \\ \underline{-42} \\ 14 \overline{)42} \text{ (3} \\ \underline{-42} \\ 0 \end{array}$$

$$\begin{array}{r} 14 \overline{)68} \text{ (4} \\ \underline{-56} \\ 12 \overline{)14} \text{ (1} \\ \underline{-12} \\ 2 \overline{)12} \text{ (6} \\ \underline{-12} \\ 0 \end{array}$$

So, 2 is the HCF of 42, 56 and 68.

Exercise 11.2

1. (a) For finding the LCM by the inspection method we need to find the multiplication tables of the given numbers.

Multiplication table of 6 = 6, 12, **18**, 24, 30, 36, 42,

Multiplication table of 9 = 9, **18**, 27, 36, 45, 54, 63,

Here 18 is the lowest common number.

18 is the LCM of 6 and 9.

- (b) Multiplication table of 12 = 12, 24, 36, 48, 60, 72, **84**,

Multiplication table of 14 = 14, 28, 42, 56, 70, **84**, 98,

Here 84 is the lowest common number.

84 is the LCM of 12 and 14.

- (c) Multiplication table of 8 = 8, 16, 24, 32, 40, 48, **56**, 64, 72, 80,

Multiplication table of 28 = 28, **56**, 84, 112, 140, 168, 196, 224, 252, 280

Here, 56 is the lowest common number.

56 is the LCM of 8 and 28.

- (d) Multiplication table of 25 = 25, 50, 75, 100, 125, 150, 175, **200**, 225, 250

Multiplication table of 40 = 40, 80, 120, 160, **200**, 240, 280, 320

Here, 200 is the lowest common number.

200 is the LCM of 25 and 40.

2. (a) Multiples of 8 = 8, 16, 24, 32, **40**, 48, 56, 64, 72, 80,

Multiples of 10 = 10, 20, 30, **40**, 50, 60, 70, 80, 90,

Here, 40 is the lowest common number.

40 is the LCM of 8 and 10.

- (b) Multiples of 9 = 9, 18, 27, **36**, 45, 54, 63, 72, 81, 90,

Multiples of 12 = 12, 24, **36**, 48, 60, 72,

Here 36 is the lowest common number.

36 is the LCM of 9 and 12.

- (c) Multiples of 12 = 12, 24, **36**, 48, 60, 72, 84, 96, 108, 120,

Multiples of 18 = 18, **36**, 54, 72, 90, 108, 126, 144, 162, 180,

Here 36 is the lowest common number.

36 is the LCM of 12 and 18.

- (d) Multiples of 14 = 14, 28, **42**, 56, 70, 84, 98, 112, 126, 140,

Multiples of 21 = 21, **42**, 63, 84, 105, 126,

Here 42 is the lowest common number.

42 is the LCM of 14 and 21.

3. (a)
$$\begin{array}{r|l} 2 & 9, 12 \\ \hline 2 & 9, 6 \\ \hline 3 & 9, 3 \\ \hline 3 & 3, 1 \\ \hline & 1, 1 \end{array}$$

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

(b)
$$\begin{array}{r|l} 2 & 12, 21 \\ \hline 2 & 6, 21 \\ \hline 3 & 3, 21 \\ \hline 7 & 1, 7 \\ \hline & 1, 1 \end{array}$$

LCM = $2 \times 2 \times 3 \times 7$
= 84

(c)
$$\begin{array}{r|l} 2 & 16, 24 \\ \hline 2 & 8, 12 \\ \hline 2 & 4, 6 \\ \hline 2 & 2, 3 \\ \hline 3 & 1, 3 \\ \hline & 1, 1 \end{array}$$

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

(d)
$$\begin{array}{r|l} 2 & 20, 25 \\ \hline 2 & 10, 25 \\ \hline 5 & 5, 25 \\ \hline 5 & 1, 5 \\ \hline & 1, 1 \end{array}$$

LCM = $2 \times 2 \times 5 \times 5$
= 100

(e)
$$\begin{array}{r|l} 2 & 15, 20, 24 \\ \hline 2 & 15, 10, 12 \\ \hline 2 & 15, 5, 6 \\ \hline 3 & 15, 5, 3 \\ \hline 5 & 5, 5, 1 \\ \hline & 1, 1, 1 \end{array}$$

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

(f)
$$\begin{array}{r|l} 2 & 15, 25, 40 \\ \hline 2 & 15, 25, 20 \\ \hline 2 & 15, 25, 10 \\ \hline 3 & 15, 25, 5 \\ \hline 5 & 5, 25, 5 \\ \hline 5 & 1, 5, 1 \\ \hline & 1, 1, 1 \end{array}$$

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

$$\begin{array}{r|l}
 2 & 15, 16, 24 \\
 \hline
 2 & 15, 8, 12 \\
 \hline
 2 & 15, 4, 6 \\
 \hline
 2 & 15, 2, 3 \\
 \hline
 3 & 15, 1, 3 \\
 \hline
 5 & 5, 1, 1 \\
 \hline
 & 1, 1, 1
 \end{array}$$

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

$$\begin{array}{r|l}
 2 & 12, 15, 20 \\
 \hline
 2 & 6, 15, 10 \\
 \hline
 3 & 3, 15, 5 \\
 \hline
 5 & 1, 5, 5 \\
 \hline
 & 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{LCM} &= 2 \times 2 \times 3 \times 5 \\
 &= 60
 \end{aligned}$$

Exercise 11.3

1. First we subtract 9 from both 33 and 45.

$$33 - 9 = 24 \qquad 45 - 9 = 36$$

Now we find the HCF of 24 and 36.

So, 12 is the greatest number that will divide 33 and 45 leaving a remainder 9.

$$\begin{array}{r}
 24 \overline{) 36} \begin{array}{l} 1 \\ -24 \\ \hline 12 \end{array} \begin{array}{l} 2 \\ -24 \\ \hline 0 \end{array} \\
 \hline
 \end{array}$$

2. First we subtract 5 from 61, 33 and 75.

$$61 - 5 = 56$$

$$33 - 5 = 28$$

$$75 - 5 = 70$$

Now we find the HCF of 56, 28 and 70.

So, 14 is the largest number that will divide 61, 33 and 75 leaving a remainder 5.

$$\begin{array}{r}
 28 \overline{) 56} \begin{array}{l} 2 \\ -56 \\ \hline 0 \end{array} \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 28 \overline{) 70} \begin{array}{l} 2 \\ -56 \\ \hline 14 \end{array} \begin{array}{l} 2 \\ -28 \\ \hline 0 \end{array} \\
 \hline
 \end{array}$$

3. First we subtract 3 from 39, 4 from 52 and 5 from 65.

$$39 - 3 = 36$$

$$52 - 4 = 48$$

$$65 - 5 = 60$$

Now we find the HCF of 36, 48 and 60.

So, 12 is the greatest number that will divide 39, 52 and 65 leaving remainders 3, 4 and 5 respectively.

$$\begin{array}{r}
 36 \overline{) 48} \begin{array}{l} 1 \\ -36 \\ \hline 12 \end{array} \begin{array}{l} 3 \\ -36 \\ \hline 0 \end{array} \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 12 \overline{) 60} \begin{array}{l} 5 \\ -60 \\ \hline 0 \end{array} \\
 \hline
 \end{array}$$

4. First we find the LCM of 6, 15 and 18.

$$\begin{array}{r|l}
 2 & 6, 15, 18 \\
 \hline
 3 & 3, 15, 9 \\
 \hline
 3 & 1, 5, 3 \\
 \hline
 5 & 1, 5, 1 \\
 \hline
 & 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 &= 2 \times 3 \times 3 \times 5 \\
 &= 90
 \end{aligned}$$

90 is the least number which is exactly divisible by each of 6, 15 and 18.

5. We know that,

$$\text{First number} \times \text{Second number} = \text{HCF} \times \text{LCM}$$

$$\text{LCM} = \frac{\text{First number} \times \text{Second number}}{\text{HCF}} = \frac{48}{2}$$

$$\text{LCM} = 24$$

6. We know that,

$$\text{First number} \times \text{Second number} = \text{HCF} \times \text{LCM}$$

$$\text{HCF} = \frac{\text{First number} \times \text{Second number}}{\text{LCM}} = \frac{108}{36}$$

$$\text{HCF} = 3$$

7. We know that,

$$\text{First number} \times \text{Second number} = \text{HCF} \times \text{LCM}$$

$$\text{Second Number} = \frac{\text{HCF} \times \text{LCM}}{\text{First number}} = \frac{3 \times 36}{12} = 3 \times 3$$

$$\text{Second Number} = 9$$

CHECK YOURSELF

1. to 4. As per Answersheet.

12. Fractional Numerals

Exercise 12.1

1. (a) One part is shaded out of two parts in the given figure.
So, the fraction of the shaded portion $\frac{1}{2}$.
- (b) One part is shaded out of three parts in the given figure.
So, the fraction of the shaded portion $\frac{1}{3}$.
- (c) Three parts are shaded out of four parts in the given figure.
So, the fraction of the shaded portion $\frac{3}{4}$.
- (d) Three parts are shaded out of eight parts in the given figure.
So, the fraction of the shaded portion $\frac{3}{8}$.
2. (a) All the fractions have same denominator.
So, we can say that these are like fractions.
- (b) All the fractions do not have same denominator.
So, we can say that these are unlike fractions.

- (c) All the fractions have different denominators.
So, we say that these are like fractions.
- (d) All the fractions have same denominator.
So, we can say that these are like fractions.
3. (a) We know that in proper fraction, denominator is greater than the numerator.
So, in $\frac{5}{9}$ 9 5
So, this is a proper fraction.
- (b) In $\frac{9}{4}$ 4 9
So this is not a proper fraction.
- (c) In $\frac{6}{11}$ 11 6
So, this is a proper fraction.
- (d) In $\frac{11}{6}$ 6 11
So, this is not a proper fraction.
- (e) In $\frac{15}{17}$ 17 15
So, this is a proper fraction.
4. (a) We know that in improper fraction, numerator is greater than the denominator.
So, in $\frac{17}{5}$ 17 5
So, we can say that this is a improper fraction.
- (b) In $\frac{5}{21}$ 5 21
So, this is not a improper fraction.
- (c) In $\frac{3}{16}$ 3 16
So, this is not a improper fraction.
- (d) In $\frac{3}{19}$ 3 19
So, this is not a improper fraction.
- (e) In $\frac{16}{3}$ 16 3
So, this is a improper fraction.

Here $\frac{1}{8}$ and $\frac{1}{22}$ have 1 as their numerators.

So, (b) and (d) are the unit fractions.

9. (a) $\frac{3}{2}$ denominator $\rightarrow 2 \overline{) 3} (1 \leftarrow$ whole number
 $\frac{-2}{1} \rightarrow$ numerator

$1\frac{1}{2}$

(b) $\frac{4}{3}$ $3 \overline{) 4} (1$
 $\frac{-3}{1}$ $1\frac{1}{3}$

(c) $\frac{4}{2}$ $2 \overline{) 4} (2$
 $\frac{-4}{0}$ 2

(d) $\frac{17}{5}$ $5 \overline{) 17} (3$
 $\frac{-15}{2}$ $3\frac{2}{5}$

(e) $\frac{27}{3}$ $3 \overline{) 27} (9$
 $\frac{-27}{0}$ 9

10. (a) $3 \div 5$ means 3 divided by 5. So the fraction for the division $\frac{3}{5}$

(b) $7 \div 9$ 7 out of 9 $\frac{7}{9}$ (c) $15 \div 25$ 15 out of 25 $\frac{15}{25}$

(d) $13 \div 15$ 13 out of 15 $\frac{13}{15}$

Exercise 12.2

1. (a) $\frac{1}{3}$ $\frac{6}{6}$ $\frac{6}{18}$ (b) $\frac{1}{3}$ $\frac{7}{7}$ $\frac{7}{21}$ (c) $\frac{2}{5}$ $\frac{5}{5}$ $\frac{10}{25}$ (d) $\frac{1}{5}$ $\frac{3}{3}$ $\frac{3}{15}$

2. (a) We can find the higher order equivalent fraction by multiplying numerator and denominator by the same number.

So, $\frac{2}{3}$ $\frac{2}{2}$ $\frac{4}{6}$, $\frac{2}{3}$ $\frac{3}{3}$ $\frac{6}{9}$, $\frac{2}{3}$ $\frac{4}{4}$ $\frac{8}{12}$, $\frac{2}{3}$ $\frac{5}{5}$ $\frac{10}{15}$

(b) $\frac{5}{7}$ $\frac{2}{2}$ $\frac{10}{14}$, $\frac{5}{7}$ $\frac{3}{3}$ $\frac{15}{21}$, $\frac{5}{7}$ $\frac{4}{4}$ $\frac{20}{28}$, $\frac{5}{7}$ $\frac{5}{5}$ $\frac{25}{35}$

(c) $\frac{3}{8}$ $\frac{2}{2}$ $\frac{6}{16}$, $\frac{3}{8}$ $\frac{3}{3}$ $\frac{9}{24}$, $\frac{3}{8}$ $\frac{4}{4}$ $\frac{12}{32}$, $\frac{3}{8}$ $\frac{5}{5}$ $\frac{15}{40}$

(d) $\frac{7}{11}$ $\frac{2}{2}$ $\frac{14}{22}$, $\frac{7}{11}$ $\frac{3}{3}$ $\frac{21}{33}$, $\frac{7}{11}$ $\frac{4}{4}$ $\frac{28}{44}$, $\frac{7}{11}$ $\frac{5}{5}$ $\frac{35}{55}$

(e) $\frac{3}{5}$ $\frac{2}{2}$ $\frac{6}{10}$, $\frac{3}{5}$ $\frac{3}{3}$ $\frac{9}{15}$, $\frac{3}{5}$ $\frac{4}{4}$ $\frac{12}{20}$, $\frac{3}{5}$ $\frac{5}{5}$ $\frac{15}{25}$

3. We can change the fraction into equivalent fractions having the numerator 16 by multiplying or dividing both numerator and denominator by suitable number.

(a) $\frac{4}{7} = \frac{4 \times 4}{7 \times 4} = \frac{16}{28}$

(b) $\frac{32}{34} = \frac{2 \times 16}{2 \times 17}$ (c) $\frac{8}{9} = \frac{2 \times 16}{2 \times 18}$ (d) $\frac{32}{50} = \frac{2 \times 16}{2 \times 25}$ (e) $\frac{64}{80} = \frac{4 \times 16}{4 \times 20}$

4. We can change the fraction into equivalent fractions having denominator 20 by dividing or multiplying denominator and numerator by suitable number.

(a) $\frac{16}{40} = \frac{2 \times 8}{2 \times 20}$ (b) $\frac{1}{4} = \frac{5 \times 1}{5 \times 4} = \frac{5}{20}$ (c) $\frac{7}{10} = \frac{2 \times 7}{2 \times 10} = \frac{14}{20}$

(d) $\frac{4}{5} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$ (e) $\frac{21}{60} = \frac{3 \times 7}{3 \times 20} = \frac{7}{20}$

5. (a) $\frac{5}{12}$ and $\frac{3}{4}$ can be made like fractions by making denominator same.

$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$. So, $\frac{5}{12}$ and $\frac{9}{12}$ are like fractions.

(b) $\frac{3}{5} = \frac{7 \times 3}{7 \times 5} = \frac{21}{35}$, $\frac{5}{7} = \frac{5 \times 5}{7 \times 5} = \frac{25}{35}$. So, $\frac{21}{35}$ and $\frac{25}{35}$ are like fractions.

(c) $\frac{7}{12} = \frac{5 \times 7}{5 \times 12} = \frac{35}{60}$, $\frac{8}{15} = \frac{4 \times 8}{4 \times 15} = \frac{32}{60}$. So, $\frac{35}{60}$ and $\frac{32}{60}$ are like fractions.

(d) $\frac{13}{25} = \frac{3 \times 13}{3 \times 25} = \frac{39}{75}$, $\frac{13}{15} = \frac{5 \times 13}{5 \times 15} = \frac{65}{75}$. So, $\frac{39}{75}$ and $\frac{65}{75}$ are like fractions.

(e) $\frac{5}{8} = \frac{3 \times 5}{3 \times 8} = \frac{15}{24}$, $\frac{7}{12} = \frac{2 \times 7}{2 \times 12} = \frac{14}{24}$, $\frac{13}{24} = \frac{13}{24}$. So, $\frac{15}{24}$, $\frac{14}{24}$ and $\frac{13}{24}$ are like fractions.

Exercise 12.3

1. (a) For comparison of fraction we cross multiply and compare

$$\frac{3}{4} \times \frac{1}{6}$$

$$3 \times 6 = 4 \times 1$$

$$18 > 4$$

So, $\frac{3}{4} > \frac{1}{6}$

- (b) Here denominators are same. Now the fraction with the greater numerator will be greater.

$\therefore 5 < 18$

So, $\frac{5}{19} < \frac{18}{19}$

(c) Here numerators are same. Now the fraction with the smaller denominator will be greater.

So, $\frac{12}{14} > \frac{12}{16}$

(d) Here denominators are same. Now the fraction with the greater numerator will be greater.

So, $\frac{19}{25} < \frac{29}{25}$

2. (a) $3\frac{2}{3} \square \frac{11}{3}$
 $\frac{3}{3} \frac{2}{3} \frac{2}{3} \square \frac{11}{3}$

$\frac{1}{3} \equiv \frac{11}{3}$

So, $3\frac{2}{3} \equiv \frac{11}{3}$

(b) $\frac{7}{4} \square 2\frac{3}{5}$

$\frac{7}{4} \square \frac{5}{5} \frac{2}{5} \frac{3}{5}$

$\frac{7}{4} \square \frac{13}{5}$

$7 \times 5 \quad 13 \times 4$ (cross-multiply)

$35 < 52$

So, $\frac{7}{4} < 2\frac{3}{5}$

(c) $2\frac{1}{10} \square \frac{3}{50}$
 $\frac{2}{10} \frac{10}{10} \frac{1}{10} \square \frac{3}{50}$

$\frac{21}{10} \square \frac{3}{50}$

$21 \times 50 \quad 3 \times 10$ (cross-multiply)

$1050 > 30$

So, $2\frac{1}{10} > \frac{3}{50}$

(d) $4\frac{10}{11} \square 4\frac{5}{22}$
 $\frac{4}{11} \frac{11}{11} \frac{10}{11} \square \frac{4}{22} \frac{22}{22} \frac{5}{22}$

$\frac{54}{11} \square \frac{93}{22}$

$54 \times 22 \quad 11 \times 93$ (cross-multiply)

$1188 > 1023$

So, $4\frac{10}{11} > 4\frac{5}{22}$

3. (a) $3\frac{4}{5}, 5\frac{2}{11}$

$\frac{19}{5} \quad \frac{57}{11}$

$19 \times 11 \quad 5 \times 57$

$209 < 285$

So, $3\frac{4}{5} < 5\frac{2}{11}$

$$(b) \frac{8}{5}, 1\frac{2}{6}$$

$$\frac{8}{5} \quad \frac{6 \ 1 \ 2}{6} \quad \frac{8}{6}$$

Here numerators are same so the fraction with smaller denominator will be greater.

$$\therefore \quad 5 < 6$$

$$\frac{8}{5} > \frac{8}{6}$$

$$\text{So,} \quad \frac{8}{5} > 1\frac{2}{6}$$

$$(c) 3\frac{1}{7} \quad 3\frac{2}{5}$$

$$\frac{3 \ 7 \ 1}{7} \quad \frac{3 \ 5 \ 2}{5}$$

$$\frac{22}{7} \quad \frac{17}{5}$$

$$22 \times 5 \quad 17 \times 7$$

$$110 < 119$$

$$\text{So, } 3\frac{1}{7} < 3\frac{2}{5}$$

$$(d) 2\frac{6}{9} \quad 2\frac{5}{9}$$

$$\frac{2 \ 9 \ 6}{9}, \quad \frac{2 \ 9 \ 5}{9}$$

$$\frac{24}{9} \quad \frac{23}{9}$$

Here denominators are same.

So, the fraction with greater numerator will be greater.

$$24 > 23$$

$$\text{So, } 2\frac{6}{9} \boxed{>} 2\frac{5}{9}$$

$$(e) \frac{11}{27}, 1\frac{4}{9}$$

$$\frac{11}{27}, \quad \frac{9 \ 1 \ 4}{9}$$

$$\frac{11}{27}, \quad \frac{13}{9}$$

$$11 \times 9 \quad 27 \times 13$$

$$99 \quad 351$$

$$\text{So, } \frac{11}{27} \boxed{<} 1\frac{4}{9}$$

4. (a) Here denominators are same so the fraction with greatest number will be the greatest.

$$3 < 6 < 7 < 8$$

So, $\frac{8}{12}$ is the greatest fraction among the given fractions.

- (b) Here numerators are same so the fraction with smallest denominator will be the greatest.

$$41 > 31 > 20 > 17 > 15$$

So, $\frac{13}{15}$ is the greatest fraction among the given fractions.

- (c) Here numerators are same so the fraction with smallest denominator will be the greatest.

$$19 > 16 > 17 > 14 > 11$$

So, $\frac{8}{11}$ is the greatest fraction among the given fractions.

5. (a) Here numerators are same so the fraction with smallest denominator will be the greatest.

$$19 > 16 > 15 > 11$$

So, $\frac{8}{11}$ is the greatest fraction among the given fractions.

- (b) Here numerators are same so the fraction with smallest denominator will be the greatest.

$$59 > 56 > 47 > 46$$

So, $\frac{42}{46}$ is the greatest fraction among the given fractions.

- (c) Here denominators are same so the fraction with greatest numerator will be the greatest.

$$1 < 7 < 8 < 9$$

So, $\frac{9}{19}$ is the greatest fraction among the given fraction.

Exercise 12.4

1. We can reduced the fractions to its lowest terms, by dividing numerators and denominators by their HCF.

- (a) $\frac{16}{12}$ H.C.F. of 16 and 12 = 4

$$\frac{16}{12} = \frac{16 \div 4}{12 \div 4} = \frac{4}{3}$$

$$\begin{array}{r|l} 2 & 16, 12 \\ \hline 2 & 8, 6 \\ \hline & 4, 3 \end{array}$$

So, $\frac{4}{3}$ is the lowest term of the fraction $\frac{16}{12}$.

$$2 \times 2 = 4$$

- (b) Similarly

$$\frac{54}{12} \text{ H.C.F. of 54 and 12} = 6$$

$$\frac{54}{12} = \frac{54 \div 6}{12 \div 6} = \frac{9}{2} \text{ So, } \frac{9}{2} \text{ is the lowest term of the fraction } \frac{54}{12}.$$

(c) $\frac{24}{20}$ H.C.F. of 24 and 20 = 4
 $\frac{24}{20} = \frac{24 \div 4}{20 \div 4} = \frac{6}{5}$. So, $\frac{6}{5}$ is the lowest term of the fraction $\frac{24}{20}$.

(d) $\frac{56}{40}$ H.C.F. of 56 and 40 = 8
 $\frac{56}{40} = \frac{56 \div 8}{40 \div 8} = \frac{7}{5}$. So, $\frac{7}{5}$ is the lowest term of the fraction $\frac{56}{40}$.

(e) $\frac{64}{72}$ H.C.F. of 64 and 72 = 8.
 $\frac{64}{72} = \frac{64 \div 8}{72 \div 8} = \frac{8}{9}$. So, $\frac{8}{9}$ is the lowest term of the fraction $\frac{64}{72}$.

2. (a) $4\frac{2}{3} = \frac{4 \times 3 + 2}{3} = \frac{14}{3}$

(b) $5\frac{1}{3} = \frac{5 \times 3 + 1}{3} = \frac{16}{3}$

Now reciprocal of $\frac{14}{3} = \frac{3}{14}$

Now reciprocal of $\frac{16}{3} = \frac{3}{16}$

(c) $2\frac{3}{5} = \frac{2 \times 5 + 3}{5} = \frac{13}{5}$

(d) $3\frac{3}{8} = \frac{3 \times 8 + 3}{8} = \frac{27}{8}$

Now reciprocal of $\frac{13}{5} = \frac{5}{13}$

Now reciprocal of $\frac{27}{8} = \frac{8}{27}$

(e) $1\frac{7}{8} = \frac{1 \times 8 + 7}{8} = \frac{15}{8}$

Now reciprocal of $\frac{15}{8} = \frac{8}{15}$

3. (a) Reciprocal of the fraction $\frac{3}{11} = \frac{11}{3}$

$\frac{11}{3}$ can be expressed as mixed fraction as

$$\begin{array}{r} \text{denominator} \rightarrow 3 \overline{) 11} \quad (3 \leftarrow \text{integral part} \\ \underline{-9} \\ 2 \rightarrow \text{numerator} \end{array}$$

So, $\frac{11}{3} = 3\frac{2}{3}$

(b) Reciprocal of the fraction $\frac{7}{10} = \frac{10}{7}$

$$\begin{array}{r} 7 \overline{) 10} \quad (1 \\ \underline{-7} \\ 3 \end{array}$$

$\frac{10}{7}$ can be expressed as mixed fraction $1\frac{3}{7}$

- (c) Reciprocal of the fraction $\frac{6}{11} \frac{11}{6}$ $6 \overline{)11} \begin{array}{r} 1 \\ -6 \\ \hline 5 \end{array}$
 $\frac{11}{6}$ can be expressed as mixed fraction $1 \frac{5}{6}$
- (d) Reciprocal of the fraction $\frac{8}{17} \frac{17}{8}$ $8 \overline{)17} \begin{array}{r} 2 \\ -16 \\ \hline 1 \end{array}$
 $\frac{17}{8}$ can be expressed as mixed fraction $2 \frac{1}{8}$
- (e) Reciprocal of the fraction $\frac{4}{21} \frac{21}{4}$ $4 \overline{)21} \begin{array}{r} 5 \\ -20 \\ \hline 1 \end{array}$
 $\frac{21}{4}$ can be expressed as mixed fraction $5 \frac{1}{4}$

CHECK YOURSELF

1. to 3. As per answersheet.

13. Fundamental Operations of Fractional Numbers

Exercise 13.1

1. (a) If the denominator are same, we add the numerator directly keeping the deonominator same.

$$\frac{5}{9} \frac{3}{9} \frac{5}{9} \frac{3}{9} \frac{8}{9}$$

(b) $\frac{1}{12} \frac{7}{12} \frac{1}{12} \frac{7}{12} \frac{8}{12}$ (c) $\frac{13}{19} \frac{5}{19} \frac{13}{19} \frac{5}{19} \frac{18}{19}$

(d) $\frac{6}{13} \frac{2}{13} \frac{4}{13} \frac{6}{13} \frac{2}{13} \frac{4}{13} \frac{12}{13}$

2. If the denominators are not same then we find the LCM of the denominators and making the LCM as denominator of the sum. Then we divide it by the denominator and multiply the numerators by the quotient and then add.

(a) $\frac{2}{3} \frac{5}{6}$ LCM of 3 and 6 = 6

$$\frac{2}{6} \frac{2}{6} \frac{5}{6} \frac{1}{6} \frac{4}{6} \frac{5}{6} \frac{9}{6} \frac{3}{6}$$

(b) $\frac{2}{5} \frac{4}{15}$ LCM of 5 and 15 = 15

$$\frac{2}{15} \frac{3}{15} \frac{4}{15} \frac{1}{15} \frac{6}{15} \frac{4}{15} \frac{10}{15} \frac{2}{15}$$

(c) $\frac{5}{1} \frac{4}{9}$

LCM of 1 and 9 = 9

$$\frac{5 \quad 9 \quad 4 \quad 1}{9} \quad \frac{45 \quad 4 \quad 49}{9}$$

(d) $\frac{3}{1} \frac{21}{18}$

LCM of 1 and 18 = 18

$$\frac{3 \quad 18 \quad 21 \quad 1}{18} \quad \frac{54 \quad 21}{18} \quad \frac{75}{18}$$

(e) $\frac{5}{6} \frac{7}{12} \frac{11}{18}$

LCM of 6, 12 and 18 = 36

$$\frac{5 \quad 6 \quad 7 \quad 3 \quad 11 \quad 2}{36} \quad \frac{30 \quad 21 \quad 22}{36} \quad \frac{73}{36}$$

(f) $\frac{1}{2} \frac{5}{6} \frac{3}{4}$

LCM of 2, 6 and 4 = 12

$$\frac{1 \quad 6 \quad 5 \quad 2 \quad 3 \quad 3}{12} \quad \frac{6 \quad 10 \quad 9}{12} \quad \frac{25}{12}$$

(g) $\frac{2}{3} \frac{5}{9} \frac{7}{21}$

LCM of 3, 9 and 21 = 63

$$\frac{2 \quad 21 \quad 5 \quad 7 \quad 7 \quad 3}{63} \quad \frac{42 \quad 35 \quad 21}{63} \quad \frac{98}{63}$$

(h) $\frac{2}{3} \frac{4}{9} \frac{5}{18}$

LCM of 3, 9 and 18 = 18

$$\frac{2 \quad 6 \quad 4 \quad 2 \quad 5 \quad 1}{18} \quad \frac{12 \quad 8 \quad 5}{18} \quad \frac{25}{18}$$

3. (a) $\frac{4}{1} \frac{6}{13}$

LCM of 1 and 13 = 13

$$\frac{4 \quad 13 \quad 6 \quad 1}{13} \quad \frac{52 \quad 6 \quad 58}{13}$$

(b) $\frac{7}{1} \frac{11}{4}$

LCM of 1 and 4 = 4

$$\frac{7 \quad 4 \quad 11 \quad 1}{4} \quad \frac{28 \quad 11 \quad 39}{4}$$

(c) $\frac{2}{1} \frac{3}{11}$

LCM of 1 and 11 = 11

$$\frac{2 \quad 11 \quad 3 \quad 1}{11} \quad \frac{22 \quad 3 \quad 25}{11}$$

(d) $\frac{7}{1} \frac{1}{11}$

LCM of 1 and 11 = 11

$$\frac{7 \quad 11 \quad 1 \quad 1}{11} \quad \frac{77 \quad 1 \quad 78}{11}$$

(e) $\frac{5}{1} + \frac{8}{13}$ LCM of 1 and 13 = 13

$$\frac{5}{1} + \frac{8}{13} = \frac{5 \times 13}{13} + \frac{8 \times 1}{13} = \frac{65}{13} + \frac{8}{13} = \frac{73}{13}$$

(f) $\frac{8}{1} + \frac{9}{5}$ LCM of 1 and 5 = 5

$$\frac{8}{1} + \frac{9}{5} = \frac{8 \times 5}{5} + \frac{9 \times 1}{5} = \frac{40}{5} + \frac{9}{5} = \frac{49}{5}$$

4. For adding mixed fraction we convert mixed fraction into improper fraction then add.

(a) In $5\frac{1}{4} + 2\frac{3}{4}$

$$5\frac{1}{4} + 2\frac{3}{4} = \frac{5 \times 4 + 1}{4} + \frac{2 \times 4 + 3}{4} = \frac{21}{4} + \frac{11}{4} = \frac{21 + 11}{4} = \frac{32}{4} = 8$$

(b) $2\frac{1}{2} + 3\frac{1}{2}$

$$2\frac{1}{2} + 3\frac{1}{2} = \frac{2 \times 2 + 1}{2} + \frac{3 \times 2 + 1}{2} = \frac{5}{2} + \frac{7}{2} = \frac{5 + 7}{2} = \frac{12}{2} = 6$$

(c) $2\frac{1}{3} + 5\frac{5}{18}$

$$2\frac{1}{3} + 5\frac{5}{18} = \frac{2 \times 3 + 1}{3} + \frac{5 \times 3 + 5}{18} = \frac{7}{3} + \frac{95}{18}$$

[∵ LCM of 3 and 18 = 18]

$$\frac{7}{3} + \frac{95}{18} = \frac{42}{18} + \frac{95}{18} = \frac{137}{18} = 7\frac{11}{18}$$

(d) $1\frac{3}{4} + 2\frac{1}{2} + 3\frac{5}{12}$

$$1\frac{3}{4} + 2\frac{1}{2} + 3\frac{5}{12} = \frac{4 \times 1 + 3}{4} + \frac{2 \times 2 + 1}{2} + \frac{3 \times 3 + 5}{12} = \frac{7}{4} + \frac{5}{2} + \frac{41}{12}$$

[∵ LCM of 4, 2 and 12 = 12]

$$\frac{7}{4} + \frac{5}{2} + \frac{41}{12} = \frac{21}{12} + \frac{30}{12} + \frac{41}{12} = \frac{92}{12} = 7\frac{8}{12}$$

(e) $1\frac{1}{8} + 3\frac{5}{12} + 2\frac{13}{16}$

$$1\frac{1}{8} + 3\frac{5}{12} + 2\frac{13}{16} = \frac{1 \times 8 + 1}{8} + \frac{3 \times 12 + 5}{12} + \frac{2 \times 16 + 13}{16} = \frac{9}{8} + \frac{41}{12} + \frac{45}{16}$$

[∵ LCM of 8, 12 and 16 = 48]

$$\frac{9}{8} + \frac{41}{12} + \frac{45}{16} = \frac{54}{48} + \frac{164}{48} + \frac{135}{48} = \frac{353}{48} = 7\frac{17}{48}$$

$$(f) \begin{array}{r} 9 \frac{5}{14} \quad 2 \frac{3}{7} \quad 3 \frac{5}{28} \quad \frac{14}{14} \quad \frac{9}{14} \quad \frac{5}{14} \quad \frac{2}{7} \quad \frac{7}{7} \quad \frac{3}{7} \quad \frac{3}{28} \quad \frac{28}{28} \quad \frac{5}{28} \\ \hline \frac{131}{4} \quad \frac{17}{7} \quad \frac{89}{28} \quad \frac{7}{28} \quad \frac{131}{28} \quad \frac{4}{28} \quad \frac{17}{28} \quad \frac{1}{28} \quad \frac{89}{28} \end{array}$$

[\because LCM of 4, 7 and 28 = 28]

$$= \frac{917}{28} \quad \frac{68}{28} \quad \frac{89}{28} \quad \frac{1076}{28}$$

$$38 \frac{12}{28} \quad 38 \frac{3}{7}$$

$$5. (a) \begin{array}{r} 2 \frac{7}{6} \quad 3 \frac{7}{12} \quad \frac{6}{6} \quad \frac{2}{6} \quad \frac{5}{6} \quad \frac{3}{12} \quad \frac{12}{12} \quad \frac{7}{12} \\ \hline \frac{17}{6} \quad \frac{43}{12} \quad \frac{34}{12} \quad \frac{43}{12} \end{array}$$

[\because LCM of 6 and 12 = 12]

$$\frac{77}{12} \quad 6 \frac{5}{12}$$

$$(b) \begin{array}{r} 3 \frac{4}{15} \quad 6 \frac{11}{20} \quad \frac{3}{15} \quad \frac{15}{15} \quad \frac{4}{15} \quad \frac{6}{20} \quad \frac{20}{20} \quad \frac{11}{20} \\ \hline \frac{49}{15} \quad \frac{131}{20} \quad \frac{49}{60} \quad \frac{4}{60} \quad \frac{131}{60} \quad \frac{3}{60} \end{array}$$

[\because LCM of 15 and 20 = 60]

$$\frac{196}{60} \quad \frac{393}{60} \quad \frac{589}{60} \quad 9 \frac{49}{60}$$

$$(c) \begin{array}{r} 3 \frac{3}{7} \quad 10 \frac{1}{7} \quad \frac{24}{7} \quad \frac{71}{7} \\ \hline \frac{24}{7} \quad \frac{71}{7} \quad \frac{95}{7} \quad 13 \frac{4}{7} \end{array}$$

$$(d) \begin{array}{r} 3 \frac{3}{4} \quad 3 \frac{7}{9} \quad 3 \frac{5}{12} \quad \frac{15}{4} \quad \frac{34}{9} \quad \frac{41}{12} \\ \hline \frac{15}{36} \quad \frac{9}{36} \quad \frac{4}{36} \quad \frac{34}{36} \quad \frac{3}{36} \quad \frac{41}{36} \end{array}$$

[\because LCM of 4, 9 and 12 = 36]

$$\frac{135}{36} \quad \frac{136}{36} \quad \frac{123}{36} \quad \frac{394}{36} \quad 1 \frac{34}{36}$$

$$(e) \begin{array}{r} 2 \frac{3}{16} \quad 3 \frac{5}{12} \quad 5 \frac{3}{4} \quad \frac{35}{16} \quad \frac{41}{12} \quad \frac{23}{4} \\ \hline \frac{3}{48} \quad \frac{35}{48} \quad \frac{4}{48} \quad \frac{41}{48} \quad \frac{23}{12} \end{array}$$

[\because LCM of 16, 12 and 4 = 48]

$$\frac{105}{48} \quad \frac{164}{48} \quad \frac{276}{48} \quad \frac{545}{48} \quad 11 \frac{17}{48}$$

$$(f) \begin{array}{r} 3 \frac{4}{7} \quad 1 \frac{10}{21} \quad \frac{7}{1} \quad \frac{25}{7} \quad \frac{31}{21} \quad \frac{7}{1} \\ \hline \frac{4}{7} \quad \frac{10}{21} \quad \frac{7}{21} \quad \frac{25}{21} \quad \frac{31}{21} \quad \frac{7}{21} \end{array}$$

$$\begin{array}{r} 25 \quad 3 \quad 31 \quad 1 \quad 7 \quad 21 \\ \hline 21 \end{array} \quad [\because \text{LCM of 7 and 21} = 21]$$

$$\begin{array}{r} 75 \quad 31 \quad 147 \quad 253 \\ \hline 21 \quad \quad 21 \end{array} \quad 12 \frac{1}{21}$$

Exercise 13.2

1. As per answersheet.

Exercise 13.3

1. (a) Here denominators are same, so we subtract the smaller numerator from the greater one directly.

$$\begin{array}{r} \frac{5}{17} \quad \frac{3}{17} \quad \frac{5}{17} \quad \frac{3}{17} \quad \frac{2}{17} \end{array}$$

(b) $\frac{9}{14} \quad \frac{6}{14} \quad \frac{9}{14} \quad \frac{6}{14} \quad \frac{3}{14}$

(c) $\frac{13}{15} \quad \frac{7}{15} \quad \frac{13}{15} \quad \frac{7}{15} \quad \frac{\quad}{15}$

- (d) Here denominator are not same, so we find the LCM of the given denominators. After that we divide the LCM by denominators and multiply quotient by numerator and subtract.

$$\begin{array}{r} \frac{3}{4} \quad \frac{3}{6} \quad \frac{6}{24} \quad \frac{3}{24} \quad \frac{4}{24} \quad \frac{3}{24} \\ \hline 18 \quad 12 \quad 6 \quad 1 \end{array}$$

[\because LCM of 4 and 6 = 24]

(e) $\frac{8}{25} \quad \frac{1}{10} \quad \frac{2}{50} \quad \frac{8}{50} \quad \frac{5}{50} \quad \frac{1}{50}$

[\because LCM of 25 and 10 = 50]

$$\begin{array}{r} 16 \quad 5 \quad 11 \\ \hline 50 \quad 50 \end{array}$$

(f) $\frac{4}{5} \quad \frac{8}{15} \quad \frac{4}{15} \quad \frac{3}{15} \quad \frac{8}{15} \quad \frac{1}{15}$

[\because LCM of 5 and 15 = 15]

$$\begin{array}{r} 12 \quad 8 \quad 4 \\ \hline 15 \quad 15 \end{array}$$

(g) $\frac{9}{16} \quad \frac{5}{12} \quad \frac{9}{48} \quad \frac{3}{48} \quad \frac{4}{48} \quad \frac{5}{48}$

[\because LCM of 16 and 12 = 48]

$$\begin{array}{r} 27 \quad 20 \quad 7 \\ \hline 48 \quad 48 \end{array}$$

(h) $\frac{15}{8} \quad \frac{5}{24} \quad \frac{15}{24} \quad \frac{3}{24} \quad \frac{5}{24} \quad \frac{1}{24}$

[\because LCM of 8 and 24 = 24]

$$\begin{array}{r} 45 \quad 5 \quad 40 \\ \hline 24 \quad 24 \end{array}$$

2. As per answersheet.

3. For subtracting the mixed fraction we convert mixed fraction into improper fraction then we perform the subtraction.

$$(a) \quad 3\frac{3}{8} - 1\frac{2}{3} = \frac{3 \times 3}{8} - \frac{8 \times 3}{8} + \frac{3 \times 1}{3} - \frac{3 \times 2}{3}$$

$$\frac{27}{8} - \frac{5}{3} = \frac{27 \times 3}{24} - \frac{8 \times 5}{24}$$

$$\frac{81}{24} - \frac{40}{24} = \frac{41}{24} = 1\frac{17}{24}$$

[∵ LCM of 8 and 3 = 24]

$$(b) \quad 3\frac{4}{6} - 2\frac{11}{12} = \frac{22}{6} - \frac{1 \times 35}{6} = \frac{22 \times 2}{12} - \frac{35 \times 1}{12}$$

$$\frac{44}{12} - \frac{35}{12} = \frac{9}{12} = \frac{3}{4}$$

[∵ LCM of 6 and 12 = 12]

$$(c) \quad \frac{5}{1} - 1\frac{4}{9} = \frac{5 \times 9}{9} - \frac{1 \times 13}{9} = \frac{45}{9} - \frac{13}{9}$$

$$\frac{45}{9} - \frac{13}{9} = \frac{32}{9} = 3\frac{5}{9}$$

[∵ LCM of 1 and 9 = 9]

$$(d) \quad 6\frac{1}{8} - 4\frac{3}{4} = \frac{49}{8} - \frac{19}{4} = \frac{49 \times 1}{8} - \frac{19 \times 2}{8}$$

$$\frac{49}{8} - \frac{38}{8} = \frac{11}{8} = 1\frac{3}{8}$$

[∵ LCM of 8 and 4 = 8]

$$(e) \quad 4\frac{7}{8} - 1\frac{11}{24} = \frac{39}{8} - \frac{35}{24} = \frac{39 \times 3}{24} - \frac{35 \times 1}{24}$$

$$\frac{117}{24} - \frac{35}{24} = \frac{82}{24} = 3\frac{10}{24}$$

[∵ LCM of 8 and 24 = 24]

$$(f) \quad 3\frac{7}{12} - 1\frac{1}{2} = \frac{43}{12} - \frac{6}{12} = \frac{43 \times 1}{12} - \frac{6 \times 1}{12}$$

$$\frac{43}{12} - \frac{6}{12} = \frac{37}{12} = 3\frac{1}{12}$$

[∵ LCM of 12 and 2 = 12]

$$(g) \quad 6\frac{2}{5} - 3\frac{9}{10} = \frac{32}{5} - \frac{39}{10} = \frac{32 \times 2}{10} - \frac{39}{10}$$

[∵ LCM of 5 and 10 = 10]

$$\begin{array}{r} \frac{2}{10} \quad \frac{32}{10} \quad \frac{39}{10} \quad \frac{1}{10} \quad \frac{64}{10} \quad \frac{39}{10} \\ \frac{25}{10} \quad \frac{5}{10} \\ \text{(h) } 8\frac{1}{4} \quad 5\frac{2}{3} \quad \frac{33}{4} \quad \frac{17}{3} \\ \frac{33}{12} \quad \frac{3}{12} \quad \frac{4}{12} \quad \frac{17}{12} \quad \frac{99}{12} \quad \frac{68}{12} \end{array} \quad [\because \text{LCM of 4 and 3} = 12]$$

$$\begin{array}{r} \frac{31}{12} \quad 2\frac{7}{12} \\ \text{4. (a) } 2 \quad 1\frac{2}{7} \quad \frac{2}{1} \quad \frac{9}{7} \\ \frac{14}{7} \quad \frac{9}{7} \quad \frac{5}{7} \end{array} \quad [\because \text{LCM of 1 and 7} = 7]$$

$$\begin{array}{r} \frac{32}{4} \quad \frac{19}{4} \quad \frac{13}{4} \quad 3\frac{1}{4} \\ \text{(b) } 8 \quad 4\frac{3}{4} \quad \frac{8}{1} \quad \frac{19}{4} \\ \frac{32}{4} \quad \frac{19}{4} \quad \frac{13}{4} \quad 3\frac{1}{4} \end{array} \quad [\because \text{LCM of 1 and 4} = 4]$$

$$\begin{array}{r} \frac{240}{56} \quad \frac{175}{56} \quad \frac{65}{56} \quad 1\frac{9}{56} \\ \text{(c) } 4\frac{2}{7} \quad 3\frac{1}{8} \quad \frac{30}{7} \quad \frac{25}{8} \\ \frac{240}{56} \quad \frac{175}{56} \quad \frac{65}{56} \quad 1\frac{9}{56} \end{array} \quad [\because \text{LCM of 8 and 7} = 56]$$

$$\begin{array}{r} \frac{126}{24} \quad \frac{56}{24} \quad \frac{70}{24} \quad 2\frac{22}{24} \\ \text{(d) } 5\frac{2}{8} \quad 2\frac{1}{3} \quad \frac{42}{8} \quad \frac{7}{3} \\ \frac{126}{24} \quad \frac{56}{24} \quad \frac{70}{24} \quad 2\frac{22}{24} \end{array} \quad [\because \text{LCM of 8 and 3} = 24]$$

Exercise 13.4

$$1. \text{ (a) } \frac{11}{12} \quad \frac{5}{12} \quad \frac{1}{12}$$

Here, denominators are same so we calculate the answer directly.

$$\begin{array}{r} \frac{11}{12} \quad \frac{5}{12} \quad \frac{1}{12} \quad \frac{7}{12} \\ \text{(b) } \frac{4}{7} \quad \frac{1}{14} \quad \frac{1}{28} \\ \frac{4}{28} \quad \frac{4}{28} \quad \frac{1}{28} \quad \frac{1}{28} \quad \frac{2}{28} \quad \frac{1}{28} \quad \frac{1}{28} \quad \frac{1}{28} \end{array} \quad [\because \text{LCM of 7, 14 and 28} = 28]$$

$$\frac{16}{28} \quad \frac{2}{28} \quad \frac{1}{28} \quad \frac{15}{28}$$

$$(h) \begin{array}{r} 8\frac{1}{3} \quad 4\frac{1}{9} \quad 6\frac{1}{6} \\ \hline \frac{25}{3} \quad \frac{37}{9} \quad \frac{37}{6} \\ \hline \frac{150}{18} \quad \frac{74}{18} \quad \frac{111}{18} \end{array}$$

[∴ LCM of 3, 9 and 6 = 18]

$$\frac{113}{18} \quad 6\frac{5}{18}$$

$$(i) \begin{array}{r} 5\frac{1}{8} \quad 2\frac{3}{4} \quad 3\frac{1}{2} \quad 4\frac{5}{16} \\ \hline \frac{41}{8} \quad \frac{11}{4} \quad \frac{7}{2} \quad \frac{69}{16} \\ \hline \frac{82}{16} \quad \frac{44}{16} \quad \frac{56}{16} \quad \frac{69}{16} \quad \frac{1}{16} \end{array}$$

[∴ LCM of 8, 4, 2 and 16 = 16]

$$2. (a) \begin{array}{r} \frac{2}{1} \quad \frac{3}{11} \\ \hline \frac{22}{11} \quad \frac{3}{11} \\ \hline \frac{25}{11} \quad 2\frac{3}{11} \end{array}$$

$$(b) \begin{array}{r} \frac{3}{1} \quad \frac{4}{13} \\ \hline \frac{39}{13} \quad \frac{4}{13} \\ \hline \frac{43}{13} \quad 3\frac{4}{13} \end{array}$$

$$(c) \begin{array}{r} \frac{7}{1} \quad \frac{12}{4} \\ \hline \frac{28}{4} \quad \frac{12}{4} \\ \hline \frac{40}{4} \quad 10 \end{array}$$

$$(d) \begin{array}{r} \frac{6}{1} \quad \frac{4}{3} \\ \hline \frac{18}{3} \quad \frac{4}{3} \\ \hline \frac{22}{3} \quad 7\frac{1}{3} \end{array}$$

$$(e) \begin{array}{r} \frac{10}{1} \quad \frac{1}{10} \\ \hline \frac{100}{10} \quad \frac{1}{10} \\ \hline \frac{101}{10} \quad 10\frac{1}{10} \end{array}$$

$$(f) \begin{array}{r} \frac{8}{1} \quad \frac{8}{5} \\ \hline \frac{40}{5} \quad \frac{8}{5} \\ \hline \frac{48}{5} \quad 9\frac{3}{5} \end{array}$$

Exercise 13.5

1. Harry had = 12 caps

He gave caps to his friend = 5 caps

The fraction of caps given by Harry to his friend $\frac{\text{given caps}}{\text{total caps}} = \frac{5}{12}$

2. Arnold spends on shirts $\frac{1}{8}$ of his pocket money

Arnold spends on jeans $\frac{5}{12}$ of his pocket money

Arnold spends on travelling $\frac{1}{4}$ of his pocket money

So, the fraction of his pocket money he spends

$$\frac{1}{8} + \frac{5}{12} + \frac{1}{4}$$

$$\frac{3}{24} + \frac{10}{24} + \frac{6}{24} = \frac{19}{24} \quad [\because \text{LCM of 8, 12 and 4} = 24]$$

3. Total length of wire $3\frac{5}{7}$ m $\frac{26}{7}$ m

Length of piece was cut $1\frac{2}{7}$ m $\frac{9}{7}$ m

Total length of remaining wire $\frac{26}{7} - \frac{9}{7} = \frac{26-9}{7} = \frac{17}{7}$ m

4. A man walked $1\frac{3}{5}$ km $\frac{8}{5}$ km

He cycled $3\frac{4}{15}$ km $\frac{49}{15}$ km

So, total distance covered by him $\frac{8}{5} + \frac{49}{15}$

$$\frac{24}{15} + \frac{49}{15} \quad [\because \text{LCM of 5 and 15} = 15]$$

$$\frac{73}{15} = 4\frac{13}{15}$$

CHECK YOURSELF

1. to 4. As per answersheet.

14. Decimals

Exercise 14.1

1. and 2. As per answersheet.

3. (a) Place value of 5 in $0.5 = \frac{5}{10}$

Here 5 is at tenths place, so we put one 0 in the denominator.

(b) Place value of 5 in $23.05 = \frac{5}{100}$

Here 5 is at hundredths place, so we put two 0 in the denominator.

(c) $72.50 = \frac{5}{10}$

Here 5 is at tenths place, so we put one 0 in the denominator.

(d) $5.06 = 5$

Here 5 is at ones place, so we put no zero in the denominator.

(e) $560.27 = 500$

Here 5 is at hundred place, so we multiply by 100.

4. We can write the decimal numbers as a sum of whole and fractional numbers.

(a) 110.11

$110 \frac{11}{100}$

(b) 1.02

$1 \frac{2}{100}$

(c) 54.3

$54 \frac{3}{10}$

(d) 405.03

$405 \frac{3}{100}$

(e) 102.632

$102 \frac{632}{1000}$

5.

		Ones	Tenths	Hundredths	Decimal number
(a)	9 tenths	0	9	0	0.9
(b)	6 tenths 7 hundredths	0	6	7	0.67
(c)	8 ones 9 tenths 6 hundredths	8	9	6	8.96
(d)	7 ones 5 hundredths	7	0	5	7.05

Exercise 14.2

1. We can express the proper fractions as decimals by putting the decimal at the number of places to which these are zeroes.

(a) $\frac{7}{10}$ one zero = 0.7 one place moved from right to left.

(b) $\frac{5}{100}$ 0.05

(c) $\frac{11}{100}$ 0.11

(d) $\frac{9}{100}$ 0.09

(e) $\frac{18}{100}$ 0.18

(f) $\frac{25}{100}$ 0.25

2. We can express the improper fractions as decimal by shifting point right to left. We shift point at many 0 (zeroes) are there in denominator.

(a) $\frac{96}{10}$ here only one zero is in the denominator, so we shift point one place from right to left.

so, $\frac{96}{10}$ can be express as 9.6 as decimals.

- (b) For mixed fraction first we convert mixed fraction into improper fraction then shift the point.

$$3\frac{1}{10} \quad \frac{3}{10} \quad \frac{10}{10} \quad \frac{1}{10}$$

$\frac{31}{10}$ now shift the point from right to left by one place.

So, $3\frac{1}{10}$ can be expressed as 3.1 as decimals.

- (c) $\frac{145}{100}$ here two zeroes are in the denominator, so we shift point from right to left by two place.

so, $\frac{145}{100}$ can be expressed as 1.45 as decimals.

- (d) $\frac{189}{100}$ here two zeroes are in the denominator, so we shift point from right to left by two place.

so, $\frac{189}{100}$ can be expressed as 1.89 as decimals.

- (e) $6\frac{1}{100}$, first we convert this into improper fraction

$$\frac{6}{100} \quad \frac{1}{100} \quad \frac{601}{100}$$

Now shift the point from right to left by two places.

so, $6\frac{1}{100}$ can be expressed as 6.01 as decimals.

- (f) $\frac{997}{100}$ here two zeroes are in the denominator, so we shift the point from right to left by two places.

so, $\frac{997}{100}$ can be expressed as 9.99 as decimals.

3. (a) 1 tenth 6 hundredths

$$\frac{1}{10} \quad \frac{6}{100} \quad 0.16$$

Now 0.16 can be expressed as a fraction by removing the point and putting zero in the denominator. We put zeroes in the denominator as much places after the decimal is from right to left.

Here in 0.16 decimal is after two places, so we put two zeroes in the denominator. So 0.16 can be expressed as fraction by $\frac{16}{100}$.

Similarly,

$$(b) 3.04 = \frac{304}{100}$$

$$(c) 17.5 = \frac{175}{100}$$

$$(d) 8.85 = \frac{885}{100}$$

4. We know that the numbers having the point after same number of digits are called like decimals. So,

38.5, 78.2, 8.5, 9.3, 6.8

9.35, 7.01, 9.09, 18.18, 9.75

5. For comparing decimal we start from the left and compare digits at same place one by one the number with greater digit at the same place will be greater.

- (a) So, in 2.95 and 0.96

$$2 > 0$$

So, $2.95 \boxed{>} 0.96$

Similarly,

- (b) $8 \boxed{=} 8.000$

$\therefore 8$ can be written as 8.000... So, $8 = 8$

- (c) $96.90 > 96.09$

- (d) $500.5 = 500.500$

$\therefore 9 = 9$ tens

$\therefore 5 = 5$ hundreds

$6 = 6$ ones

$0 = 0$ tens

$9 > 0$ tenths

$0 = 0$ ones

so, $96.90 > 96.09$

$5 = 5$ tenths

We can write 500.05 as 500.500

- (e) $3.93 > 3.90$

- (f) $446.287 < 447.398$

$\therefore 3 = 3$ ones

$\therefore 4 = 4$ hundreds

$9 = 9$ tenths

$4 = 4$ tens

$3 > 0$ hundredths

$6 < 7$

So, $3.93 > 3.90$

So, $446.287 < 447.398$

CHECK YOURSELF

1. to 4. As per answersheet.

15. Time

Exercise 15.1

1. (a) For writing the given time to the 24 hour system we write the given time as proper numeration and then remove minute separating collon at write hours instead of a.m. or p.m.

12:30 p.m. can be written as 1230 hours.

So 120 hours.

(c) \because 1 day = 24 hours
 115 hours = $115 \div 24$

$$\begin{array}{r} 24 \overline{) 115} \left(4 \text{ days} \right. \\ \underline{-96} \\ \quad 19 \text{ hours} \end{array}$$

so, 115 hours
 = 4 days 19 hours

(d) \because 1 day = 24 hours
 56 hours = $56 \div 24$

$$\begin{array}{r} 24 \overline{) 56} \left(2 \text{ days} \right. \\ \underline{-48} \\ \quad 8 \text{ hours} \end{array}$$

so, 56 hours
 = 2 days 8 hours

6. (a) We know that 1 day = 24 hours

\because 1 day = 24 hours
 3 days = 3×24 hours
 = 72 hours

(b) We know that 1 week = 7 days

\because 1 day = 24 hours
 1 week = 7 days = 7×24 hours
 = 168 hours

(c) \because 1 day = 24 hours

4 days 5 hours = $4 \times 24 + 5$ hours
 = 101 hours

(d) \because 1 day = 24 hours

17 days 10 hours = $17 \times 24 + 10$ hours
 = $408 + 10$ hours
 = 1418 hours

Exercise 15.2

1. (a)

$$\begin{array}{r} \boxed{} \boxed{} \boxed{} \\ 7 \quad 53 \quad 48 \\ + 9 \quad 17 \quad 25 \\ \hline 17 \quad 71 \quad 73 \\ \downarrow \quad \downarrow \quad \downarrow \\ \hline 17 \quad 11 \quad 13 \end{array} \begin{array}{l} \rightarrow 73 \text{ sec.} = 1 \text{ min } 13 \text{ sec.} \\ \rightarrow 71 \text{ min.} = 1 \text{ hour } 11 \text{ min} \end{array}$$

So, we write 13 under sec and carry 1 min to min.

So we write 11 under min and carry 1 hour to hours.

So, 17 hours 11 min 13 sec.

Similarly,

(b)

$$\begin{array}{r} \boxed{} \boxed{} \\ 3 \quad 38 \quad 50 \\ + 4 \quad 56 \quad 25 \\ \hline 8 \quad 95 \quad 75 \\ \downarrow \quad \downarrow \quad \downarrow \\ \hline 8 \quad 35 \quad 15 \end{array} \quad 75 \text{ sec.} = 1 \text{ min. } 15 \text{ sec.}$$

$$\begin{array}{r} \boxed{1} \boxed{5} \quad \boxed{2} \boxed{15} \\ 25 : 35 \\ - 17 : 16 \\ \hline 08 : 19 \end{array}$$

6 cannot be subtracted from 5.

So we take 1 carry from 3 to 5.

Now $15 - 6 = 9$

$$\begin{array}{r} \boxed{2} \boxed{5} \\ \cancel{3} \cancel{6} : 10 \\ - 19 : 45 \\ \hline 16 : 25 \end{array}$$

45 min cannot be subtracted from 10 min.

So we carry 1 hour.

Now $60 + 10 = 70$ min $- 45$ min = 25 min

Write 25 under the min.

$$\begin{array}{r} \boxed{2} \boxed{17} \quad \boxed{3} \boxed{15} \quad \boxed{2} \boxed{10} \\ \cancel{3} \cancel{7} \quad \cancel{4} \cancel{5} \quad \cancel{3} \cancel{0} \\ - 18 \quad 26 \quad 15 \\ \hline 19 \quad 19 \quad 15 \end{array}$$

$$\begin{array}{r} 24 + 60 - 35 = 49 \\ \boxed{4} \quad \boxed{4} \\ 2\cancel{5} \quad 2\cancel{5} \quad 2\cancel{5} \rightarrow 25 + 60 = 85 - 35 \\ - 15 \quad 35 \quad 35 \quad = 50 \\ \hline 9 \quad 49 \quad 50 \end{array}$$

4. (a) 34 min 20 sec

13 min 10 sec

$$\begin{array}{r} \text{difference} \quad 34 : 20 \\ - 13 : 10 \\ \hline 21 : 10 \end{array}$$

(b) 9 hr 10 min 10 sec

2 hr 5 min 5 sec

$$\begin{array}{r} \text{difference} \quad 9 \ 10 \ 10 \\ - 2 \ 05 \ 05 \\ \hline 7 \ 05 \ 05 \end{array}$$

(c) 24 hr 35 min

15 hr 15 min

$$\begin{array}{r} \text{difference} \quad \boxed{9} \boxed{14} \\ 24 \ 35 \\ - 15 \ 15 \\ \hline 9 \ 20 \end{array}$$

(d) 11 hr 15 min 20 sec.

4 hr 20 min 30 sec.

$$\begin{array}{r} \text{difference} \quad \boxed{10} \ \boxed{14} \\ 11 \ 15 \ 20 \rightarrow 14 + 60 = 74 - 20 = 54 \\ - 4 \ 20 \ 30 \rightarrow 20 + 60 = 80 - 30 = 50 \\ \hline 6 \ 54 \ 50 \end{array}$$

5. (a) $\begin{array}{r} \text{hr} \ \text{min} \ \text{sec} \\ 2 \ 5 \ 5 \\ \times 8 \\ \hline 10 \ 40 \ 40 \end{array}$

(b) $\begin{array}{r} \text{hr} \ \text{min} \\ 12 \ 15 \\ \times 3 \\ \hline 36 \ 45 \end{array}$

(c) $\begin{array}{r} \text{hr} \ \text{min} \ \text{sec} \\ 32 \ 25 \ 5 \\ \times 5 \\ \hline 75 \ 25 \\ \hline 161 \ 15 \ 25 \end{array}$

(d) $\begin{array}{r} \text{min} \ \text{sec} \\ 10 \ 10 \\ \times 5 \\ \hline 50 \ 50 \end{array}$

(e) $\begin{array}{r} 15 \ 12 \\ \times 5 \\ \hline 60 \rightarrow 60 \text{ sec.} = 1 \text{ min} \\ \hline 76 \ 00 \end{array}$

75 min = 1 hr 15 min

(f) $\begin{array}{r} \text{min} \ \text{sec} \\ 25 \ 30 \\ \times 2 \\ \hline 60 \rightarrow 60 \text{ sec} = 1 \text{ min} \\ \hline 51 \ 00 \end{array}$

6. (a)
$$\begin{array}{r} \text{hr} \quad \text{min} \\ 13 \quad 30 \\ \times 5 \\ \hline 150 \rightarrow 150 \text{ min} \\ \hline 67 \quad 30 = 2 \text{ hr } 30 \text{ min} \end{array}$$

(b)
$$\begin{array}{r} \text{min} \quad \text{sec} \\ 10 \quad 15 \\ \times 5 \\ \hline 75 \rightarrow 75 \text{ sec} \\ \hline 51 \quad 15 = 1 \text{ min } 15 \text{ sec} \end{array}$$

(c)
$$\begin{array}{r} \text{hr} \quad \text{min} \quad \text{sec} \\ 2 \quad 5 \quad 8 \\ \times 9 \\ \hline 72 \rightarrow 72 \text{ sec} \\ \hline 18 \quad 46 \quad 12 = 1 \text{ min } 12 \text{ sec} \end{array}$$

(d)
$$\begin{array}{r} \text{min} \quad \text{sec} \\ 5 \quad 23 \\ \times 9 \\ \hline 207 \rightarrow 207 \text{ sec} \\ \hline 48 \quad 27 = 3 \text{ min } 27 \text{ sec} \end{array}$$

7. (a)
$$\begin{array}{r} 1 \quad 3 \\ 15 \overline{) 15 \ 45} \\ \underline{-15} \\ 0 \ 45 \\ \underline{-45} \\ 0 \end{array}$$

(b)
$$\begin{array}{r} 5 \\ 7 \overline{) 37} \\ \underline{-35} \\ 2 \end{array}$$

 2 min = 120 sec

$$\begin{array}{r} 18 \\ 7 \overline{) 126} \\ \underline{-7} \\ 56 \\ \underline{-56} \\ 0 \end{array}$$

So, 1 hr 3 min

120 + 6 sec = 126 sec

So, 5 min 18 sec

(c)
$$\begin{array}{r} 5 \quad 5 \\ 6 \overline{) 30 \ 30} \\ \underline{30} \\ 0 \\ \times 30 \\ \hline 30 \\ \hline 0 \end{array}$$

(d)
$$\begin{array}{r} 2 \\ 8 \overline{) 18} \\ \underline{-16} \\ 2 \end{array}$$

$$\begin{array}{r} 20 \\ 8 \overline{) 160} \\ \underline{-160} \\ 0 \end{array}$$

2 hours = 120 min

So, 2 hr 20 min

= 120 + 40 min = 160 min

So, 5 min 5 sec

(e)
$$\begin{array}{r} 2 \\ 14 \overline{) 34} \\ \underline{-28} \\ 6 \end{array}$$

6 hr = 360 min

= 360 + 43 min = 403 min

(f)
$$\begin{array}{r} 6 \\ 20 \overline{) 121} \\ \underline{-120} \\ 1 \end{array}$$

1 hour = 60 min

= 60 + 41 min = 101 min

$$\begin{array}{r} 28 \\ 14 \overline{) 403} \\ \underline{-28} \\ 123 \\ \underline{-112} \\ 11 \end{array}$$

11 min = 660 sec = 660 + 12 sec = 672 sec

$$\begin{array}{r} 5 \\ 20 \overline{) 101} \\ \underline{-100} \\ 1 \end{array}$$

1 min = 60 sec

60 + 40 sec = 100 sec

$$\begin{array}{r} 48 \\ 14 \overline{) 672} \\ \underline{-56} \\ 112 \\ \underline{-112} \\ 0 \end{array}$$

48 sec

So, 2 hr 28 min 48 sec

$$\begin{array}{r} 5 \\ 20 \overline{) 100} \\ \underline{-100} \\ 0 \end{array}$$

So, 6 hr 5 min 5 sec

$$(g) \begin{array}{r} 5 \overline{) 26} \\ \underline{-25} \\ 1 \end{array}$$

1 hr = 60 min

60 + 36 min = 96 min

$$\begin{array}{r} 5 \overline{) 96} \\ \underline{-5} \downarrow \\ 46 \\ \underline{-45} \\ 1 \end{array}$$

1 min = 60 sec

60 + 30 min = 90 sec

$$\begin{array}{r} 5 \overline{) 90} \\ \underline{-5} \downarrow \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

So, 5 hr 19 min 18 sec

$$(h) \begin{array}{r} 5 \overline{) 86} \\ \underline{-80} \\ 6 \end{array}$$

6 hr = 360 min

360 + 14 = 374 min

$$\begin{array}{r} 16 \overline{) 374} \\ \underline{-32} \downarrow \\ 54 \\ \underline{-48} \\ 6 \end{array}$$

6 min = 360 sec

360 + 8 sec = 368 sec

$$\begin{array}{r} 16 \overline{) 368} \\ \underline{-32} \downarrow \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

So, 5 hr 23 min 23 sec

8. One cake take time for bake = 3 hr 21 min

$$\begin{array}{r} 5 \text{ cakes will take time} = \begin{array}{r} \text{hr} \quad \text{min} \\ 3 \quad 21 \\ \times \quad 5 \\ \hline 105 \end{array} \rightarrow 105 \text{ min} = 1 \text{ hr } 45 \text{ min} \\ \begin{array}{r} \downarrow \\ 16 \quad 45 \end{array} \end{array}$$

So, 5 cakes will take the time of 16 hr 45 min to bake.

9. Train started from Delhi at = 0645 hours

Train reached at Kanpur at = 1415 hours

Time taken by the train to cover distance =

We cannot subtract 45 from 15, so we carry 1 hr to min

$$\begin{array}{r} \boxed{13} \quad \boxed{75} \\ 3 \quad 7 \\ 1415 \\ -0645 \\ \hline 7:30 \end{array}$$

$$15 + 60 = 75$$

$$75 - 45 = 30$$

So, 7 hr 30 min

10. Ankur left for his school at = 7:25 a.m.

Ankur came back from school at = 1:15 p.m.

The time spend by Ankur at school

= time of left to noon + time after noon to came back

= 7:25 a.m. to noon + noon to 1:15 p.m.

$$= 4:35 + 1:15$$

Ankur spend 5 hr 50 min at school.

$$\begin{array}{r} 4:35 \\ 1:15 \\ \hline 5:50 \end{array}$$

Exercise 15.3

1. (a) \because 1 month = 30 days
 5 months 12 days = $5 \times 30 + 12$ days
 = $150 + 12$ days
 = 162 days
- (b) \because 1 week = 7 days
 8 weeks 4 days = $8 \times 7 + 4$ days
 = $56 + 4$ days
 = 60 days
- (c) \because 1 year = 365 days
 1 year 2 weeks = $1 \times 365 + 7 \times 2$ days
 = $365 + 14$ days
 = 379 days
- (d) \because 1 month = 30 days
 7 months 3 weeks and 2 days = $7 \times 30 + 3 \times 7 + 2$ days
 = $210 + 21 + 2$ days
 = 223 days
2. (a) \because 1 week = 7 days
 98 days = $98 \div 7$
 = 14 weeks
- (b) \because 1 week = 7 days
 105 days = $105 \div 7$
 = 15 weeks
- (c) \because 1 year = 52 weeks
 2 years = 52×2
 = 104 weeks
- (d) \because 1 year = 52 weeks
 1 year 7 days = $52 + 1$ week
 = 53 weeks
3. (a) \because 1 week = 7 days
 35 days = $35 \div 7$
 = 5 weeks
- (b) \because 1 week = 7 days
 115 days = 16 weeks 3 days
- (c) \because 1 week = 7 days
 236 days = 33 weeks 5 days
- (d) \because 1 week = 7 days
 486 days = 69 weeks 3 days
4. (a) \because 1 month = 30 days
 120 days = $120 \div 30$
 = 4 months
- (b) \because 1 month = 30 days
 365 days = 12 months
- (c) \because 1 year = 12 months
 90 days = 3 months
 1 year 90 days
 = $12 + 3$ months
 = 15 months
- (d) \because 1 year = 12 months
 3 years 3 months
 = $12 \times 3 + 3$ months
 = 39 months

$$(c) \because 1 \text{ p} = \frac{\text{₹}1}{100}$$

$$170 \text{ p} = \frac{\text{₹}170}{100} = \text{₹}1.70$$

$$(d) \because 1 \text{ p} = \frac{\text{₹}1}{100}$$

$$296 \text{ p} = \frac{\text{₹}296}{100} = \text{₹}2.96$$

$$(e) \because 1 \text{ p} = \frac{\text{₹}1}{100}$$

$$274 \text{ p} = \frac{\text{₹}274}{100} = \text{₹}2.74$$

$$2. (a) \because \text{₹}1 = 100\text{p}$$

$$\text{₹}18.13 = 18.13 \times 100\text{p}$$

$$= 1813 \text{ p}$$

$$(b) \because \text{₹}1 = 100\text{p}$$

$$\text{₹}65.03 = 65.03 \times 100\text{p}$$

$$= 6503 \text{ p}$$

$$(c) \because \text{₹}1 = 100\text{p}$$

$$\text{₹}51.15 = 51.15 \times 100\text{p}$$

$$= 5115\text{p}$$

$$(d) \because \text{₹}1 = 100\text{p}$$

$$\text{₹}13.52 = 13.52 \times 100\text{p}$$

$$= 1352\text{p}$$

$$(e) \because \text{₹}1 = 100\text{p}$$

$$\text{₹}421.6 = 421.6 \times 100\text{p}$$

$$= 42160\text{p}$$

$$3. (a) \begin{array}{r} \text{₹}1256.72 \\ + \text{₹}79.93 \\ \hline \text{₹}1336.65 \end{array}$$

$$(b) \begin{array}{r} \text{₹}2132.13 \\ \text{₹}2501.05 \\ + \text{₹}11.39 \\ \hline \text{₹}4644.57 \end{array}$$

$$(c) \begin{array}{r} \text{₹}6107.04 \\ \text{₹}1853.14 \\ + \text{₹}250.41 \\ \hline \text{₹}8210.59 \end{array}$$

$$(d) \begin{array}{r} \text{₹}1056.10 \\ \text{₹}2317.50 \\ + \text{₹}100.00 \\ \hline \text{₹}3473.60 \end{array}$$

$$4. (a) \begin{array}{r} \text{₹}1089.53 \\ - \text{₹}189.35 \\ \hline \text{₹}900.18 \end{array}$$

$$(b) \begin{array}{r} \text{₹}4992.20 \\ - \text{₹}4259.70 \\ \hline \text{₹}742.50 \end{array}$$

$$(c) \begin{array}{r} \text{₹}7672.07 \\ - \text{₹}6721.70 \\ \hline \text{₹}890.37 \end{array}$$

$$(d) \begin{array}{r} \text{₹}3810.50 \\ - \text{₹}1950.10 \\ \hline \text{₹}1860.40 \end{array}$$

5. (a) Sam purchased cloth = ₹856.92
 Sam purchased calculator = ₹268.56
 Sam purchased dry fruits = ₹306.75
 He spend total =

$$\begin{array}{r} \text{₹}856.92 \\ + \text{₹}268.56 \\ + \text{₹}306.75 \\ \hline \text{₹}1432.23 \end{array}$$

So, he spent ₹1432.23 in all.

(b) Mohan purchased V.C.D. for = ₹9528.50

Mohan purchased bicycle for = ₹1852.64

$$\begin{array}{r} \boxed{1} \boxed{1} \boxed{1} \\ ₹ \quad 9528.50 \\ + ₹ \quad 1852.64 \\ \hline \end{array}$$

So, Mohan pay for these articles = $\frac{₹11381.14}{}$

(c) Bike costs = ₹ 9527.85

Camera costs = ₹ 1251.50

$$\begin{array}{r} \boxed{1} \\ \text{Total costs} = \\ ₹ \quad 9527.85 \\ + ₹ \quad 1251.50 \\ \hline ₹10779.35 \end{array}$$

(d) A cooler costs = ₹4156.60

Another cooler costs = ₹3084.75

$$\begin{array}{r} \boxed{15} \boxed{15} \boxed{15} \boxed{10} \\ \text{Difference between their costs} = \\ ₹4156.60 \\ - ₹3084.75 \\ \hline ₹1071.85 \end{array}$$

Exercise 16.2

1. (a)

$$\begin{array}{r} \boxed{1} \boxed{1} \boxed{1} \\ \boxed{4} \boxed{4} \boxed{6} \\ ₹2005.58 \\ \times 28 \\ \hline 16044.64 \\ + 40111.60 \\ \hline ₹56156.24 \end{array}$$

(b)

$$\begin{array}{r} \boxed{1} \boxed{1} \\ ₹4008.80 \\ \times 21 \\ \hline 4008.80 \\ + 80176.00 \\ \hline ₹84184.80 \end{array}$$

(c)

$$\begin{array}{r} \boxed{2} \quad \quad \boxed{2} \\ \boxed{6} \quad \quad \boxed{7} \\ ₹2800.09 \\ \times 38 \\ \hline 22400.72 \\ + 84002.70 \\ \hline ₹106403.42 \end{array}$$

(d)

$$\begin{array}{r} \boxed{4} \quad \quad \boxed{4} \\ ₹3180.08 \\ \times 50 \\ \hline 00000.00 \\ + 159004.00 \\ \hline ₹159004.00 \end{array}$$

2. (a)

$$\begin{array}{r} \boxed{2} \quad \boxed{1} \\ \boxed{3} \quad \boxed{2} \\ ₹9.95 \\ \times 34 \\ \hline 39.80 \\ + 298.50 \\ \hline ₹338.30 \end{array}$$

(b)

$$\begin{array}{r} \boxed{1} \boxed{3} \boxed{2} \\ ₹92.64 \\ \times 15 \\ \hline 463.20 \\ + 926.40 \\ \hline ₹1389.60 \end{array}$$

$$\begin{array}{r}
 \begin{array}{c} \boxed{1} \\ \boxed{2} \end{array} \\
 \begin{array}{r}
 \text{₹ } 70.48 \\
 \times 23 \\
 \hline
 211.44 \\
 + 1409.60 \\
 \hline
 \text{₹ } 1621.04
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{c} \boxed{1} \boxed{2} \boxed{4} \\ \text{₹ } 61.25 \end{array} \\
 \times 18 \\
 \hline
 490.00 \\
 + 612.50 \\
 \hline
 \text{₹ } 1102.50
 \end{array}$$

3. (a) $32 \overline{)4939.2} (154.35$

$$\begin{array}{r}
 -32 \\
 \hline
 173 \\
 -160 \\
 \hline
 139 \\
 -128 \\
 \hline
 112 \\
 -96 \\
 \hline
 160 \\
 -160 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}4939.2 \div 32 = \text{₹}154.35$

3. (b) $28 \overline{)7185.64} (256.63$

$$\begin{array}{r}
 -56 \\
 \hline
 158 \\
 -140 \\
 \hline
 185 \\
 -168 \\
 \hline
 176 \\
 -168 \\
 \hline
 84 \\
 -84 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}7185.64 \div 28 = \text{₹}256.63$

(c) $21 \overline{)4962.51} (236.31$

$$\begin{array}{r}
 -42 \\
 \hline
 76 \\
 -63 \\
 \hline
 132 \\
 -126 \\
 \hline
 65 \\
 -63 \\
 \hline
 21 \\
 -21 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}4962.51 \div 21 = \text{₹}236.31$

(d) $34 \overline{)12066.26} (354.89$

$$\begin{array}{r}
 -102 \\
 \hline
 186 \\
 -170 \\
 \hline
 166 \\
 -136 \\
 \hline
 302 \\
 -272 \\
 \hline
 306 \\
 -306 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}12066.26 \div 34 = \text{₹}354.89$

4. (a) $18 \overline{)4742.46} (263.47$

$$\begin{array}{r}
 -36 \\
 \hline
 114 \\
 -108 \\
 \hline
 62 \\
 -54 \\
 \hline
 84 \\
 -72 \\
 \hline
 126 \\
 -126 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}4742.46 \div 18 = \text{₹}263.47$

(b) $37 \overline{)9503.08} (256.84$

$$\begin{array}{r}
 -74 \\
 \hline
 210 \\
 -185 \\
 \hline
 253 \\
 -222 \\
 \hline
 310 \\
 -296 \\
 \hline
 148 \\
 -148 \\
 \hline
 0
 \end{array}$$

So, $\text{₹}9503.08 \div 37 = \text{₹}256.84$

- (e) The cost of 14 equal gold ring = ₹18799.76

The cost of one ring = $14 \overline{)18799.76} (1342.84$

$$\begin{array}{r}
 \begin{array}{r}
 \underline{-14} \\
 47 \\
 \underline{-42} \\
 59 \\
 \underline{-56} \\
 39 \\
 \underline{-28} \\
 117 \\
 \underline{-112} \\
 56 \\
 \underline{-56} \\
 0
 \end{array}
 \end{array}$$

CHECK YOURSELF

1. to 4. As per answersheet.

17. Perimeter

1. (a) For find the perimeters of the triangle we add the length of all sides of triangle.

Here all three sides of triangle are 4 cm long.

So we add all three of them in order of finding perimeter.

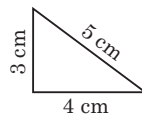
$$\begin{aligned}
 \text{Perimeter} &= 4 + 4 + 4 \text{ cm} \\
 &= 12 \text{ cm}
 \end{aligned}$$



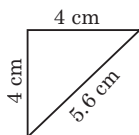
- (b) Here three sides of triangle are 5 cm, 3 cm and 4 cm long.

So we add all three of them in order to finding perimeter.

$$\begin{aligned}
 \text{Perimeter} &= 3 + 5 + 4 \text{ cm} \\
 &= 12 \text{ cm}
 \end{aligned}$$

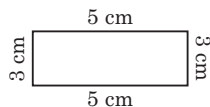


- (c)

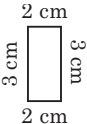


$$\begin{aligned}
 \text{Perimeter} &= 4 + 4 + 5.6 \text{ cm} \\
 &= 13.6 \text{ cm}
 \end{aligned}$$

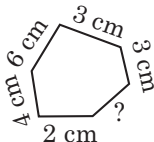
2. (a) Perimeter =
- $5 + 3 + 5 + 3 \text{ cm}$
-
- = 16 cm



(b)  Perimeter = $3 + 4 + 3 + 4$ cm
= 14 cm

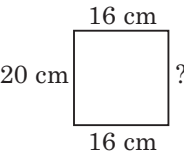
(c)  Perimeter = $2 + 3 + 2 + 3$ cm
= 10 cm

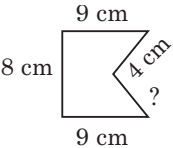
3. (a) We know that perimeter is the sum of all lengths in the given figure, so we can find the length of missing side by subtracting the sum of other sides from the perimeter.



Perimeter = 22

So, the length of missing side = $22 - (4 + 6 + 3 + 3 + 2)$ cm
= $22 - 18$ cm = 4 cm

(b)  So, the length of missing side
= $72 - [20 + 16 + 16]$ cm
= $72 - 52$ cm
= 20 cm

(c)  So, the length of missing side
= $34 - (8 + 9 + 9 + 4)$ cm
= $34 - 30$ cm
= 4 cm

4. We know that square field has equal sides.

One side of square field is given as = 10.2 cm

We know that the perimeter of square field = $4 \times$ side
= 4×10.2 cm
= 40.8 cm

5. We know that rectangular field has equal opposite sides.

Length of the garden = 240 m

Breadth of the garden = 80 m

We know that perimeter of rectangle = 2 (length + breadth)
= 2 (240 + 80) m
= 2 (320) m
= 640 m

6. The number of tree can be planted around the rectangular plot
= Perimeter \div 4

$$\begin{aligned}\text{So, the perimeter of rectangular plot} &= 2 (\text{length} + \text{breadth}) \\ &= 2 (300 + 200) \text{ m} \\ &= 2 (500) \text{ m} \\ &= 1000 \text{ m}\end{aligned}$$

$$\text{So, number of tree} = 1000 \div 4$$

= 250 trees can be planted at a distance of 4 metres each.

7. Length of the rectangular frame = 24 cm

$$\text{Breadth of the rectangular frame} = 20 \text{ cm}$$

$$\begin{aligned}\text{So, the perimeter of rectangular frame} &= 2 (\text{length} + \text{breadth}) \\ &= 2 (24+20) \text{ cm} \\ &= 2 (44) \text{ cm} = 88 \text{ cm}\end{aligned}$$

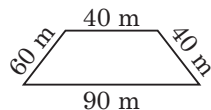
8. Side of square field = 160 m

Total distance covered by walking around its boundary = Perimeter of field.

$$\begin{aligned}\text{Perimeter of square field} &= 4 \times \text{side} \\ &= 4 \times 160 \text{ m} \\ &= 640 \text{ m}\end{aligned}$$

9. The total length of wire to fence 3 times around the field = 3 \times perimeter of the field

$$\begin{aligned}\text{Perimeter of the field} &= 60 + 40 + 40 + 90 \text{ m} \\ &= 230 \text{ m}\end{aligned}$$



$$\begin{aligned}\text{Length of wire required} &= 3 \times \text{perimeter} \\ &= 3 \times 230 \text{ m} \\ &= 690 \text{ m}\end{aligned}$$

Wire costs = ₹10 per meter

$$\text{Total cost of fencing} = ₹(10 \times 690) = ₹6900$$

10. The side of the equilateral triangle = 25 m

The cost of making path = ₹50 per metre

The cost of making path around the park

$$= \text{Perimeter of the park} \times ₹50$$

$$\begin{aligned}\text{Perimeter of equilateral triangle} &= 25 \times 3 \text{ m} \\ &= 75 \text{ m} \\ &= 75 \times ₹50\end{aligned}$$

$$\text{Cost of making path} = ₹3750$$

CHECK YOURSELF

1. to 4. As per answersheet.

18. Measurement**Exercise 18.1**

1. (a) $\because 1 \text{ km} = 1000 \text{ m}$
 $3 \text{ km } 255 \text{ m}$
 $= 3 \times 1000 + 255 \text{ m}$
 $= 3000 + 255 \text{ m}$
 $= 3255 \text{ m}$
- (b) $\because 1 \text{ m} = 10 \text{ dm}$
 $7 \text{ m } 45 \text{ dm}$
 $= 7 \times 10 + 45 \text{ dm}$
 $= 70 + 45 \text{ dm}$
 $= 115 \text{ dm}$
- (c) $\because 1 \text{ m} = 100 \text{ cm}$
 $5 \text{ m } 25 \text{ cm}$
 $= 5 \times 100 + 25 \text{ cm}$
 $= 500 + 25 \text{ cm}$
 $= 525 \text{ cm}$
- (d) $\because 1 \text{ cm} = 10 \text{ mm}$
 $62 \text{ cm } 4 \text{ mm}$
 $= 62 \times 10 + 4 \text{ mm}$
 $= 620 + 4 \text{ mm}$
 $= 624 \text{ mm}$
- (e) $\because 1 \text{ dm} = 10 \text{ cm}$
 $13 \text{ dm } 5 \text{ cm}$
 $= 13 \times 10 + 5 \text{ cm}$
 $= 130 + 5 \text{ cm}$
 $= 135 \text{ cm}$
- (f) $\because 1 \text{ m} = 1000 \text{ mm}$
 $9 \text{ m } 82 \text{ mm}$
 $= 9 \times 1000 + 82 \text{ mm}$
 $= 9000 + 82 \text{ mm}$
 $= 9082 \text{ mm}$
- (g) $\because 1 \text{ m} = 100 \text{ cm}$
 $4 \text{ m } 3 \text{ dm}$
 $= 4 \times 100 + 3 \times 10 \text{ cm}$
 $= 400 + 30 + 2 \text{ cm}$
 $= 430 + 2 \text{ cm}$
 $= 432 \text{ cm}$
- (h) $\because 1 \text{ km} = 1000 \text{ m}$
 $1 \text{ m} = 100 \text{ cm}$
 $6 \text{ km } 42 \text{ m}$
 $= (6 \times 1000) \times 100$
 $\quad + (42 \times 100) + 12 \text{ cm}$
 $= 600000 + 4200 + 12 \text{ cm}$
 $= 604212 \text{ cm}$
- (i) $\because 1 \text{ m} = 10 \text{ dm}$
 $7 \text{ m } 5 \text{ dm} = 7 \times 10 + 5 \text{ dm}$
 $= 75 \text{ dm}$
2. (a) We know that $1 \text{ cm} = \frac{1}{100} \text{ m}$
- (b) $1 \text{ m} = 100 \text{ cm}$
- (c) $1 \text{ km} = 1000 \text{ m}$
- (d) $1 \text{ dam} = 10 \text{ m}$
- (e) $1 \text{ cg} = 10 \text{ mg}$
- (f) $1 \text{ g} = 100 \text{ cg}$
- (g) $1 \text{ kg} = 1000 \text{ g}$
- (h) $1 \text{ dag} = 10 \text{ g}$

3. (a) $\because 1 \text{ hm} = \frac{1}{10} \text{ km}$
 $3275 \text{ hm} = \frac{3275}{10} \text{ km}$
 $= 327.5 \text{ km}$
- (b) $\because 1 \text{ dam} = \frac{1}{100} \text{ km}$
 $2546 \text{ dam} = \frac{2546}{100} \text{ km}$
 $= 25.46 \text{ km}$
- (c) $\because 1 \text{ m} = \frac{1}{1000} \text{ km}$
 $8506 \text{ m} = \frac{8506}{1000} \text{ km}$
 $= 8.506 \text{ km}$
- (d) $\because 1 \text{ dm} = \frac{1}{10000} \text{ km}$
 $645769 \text{ dm} = \frac{645769}{10000} \text{ km}$
 $= 64.5769 \text{ km}$
4. (a) We can measure the distance between Delhi and Mumbai only by km. So, **km**.
- (b) We can measure the length of a pencil only by cm.
So, **cm**.
- (c) We can measure the length of a park only by m.
So, **m**.
- (d) We can measure the thickness of a book only by mm.
So, **mm**.
- (e) We can measure the length of our desk only by m.
So, **m**.
5. (a)
$$\begin{array}{r} \text{cm} \quad \text{mm} \\ \boxed{1}\boxed{1} \quad \boxed{2} \\ 22 \quad 6 \\ 18 \quad 4 \\ +6 \quad 2 \\ \hline 47 \quad 2 \end{array}$$
- (b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ \boxed{1}\boxed{1} \quad \boxed{5} \\ 54 \quad 31 \\ 890 \\ +12042 \\ \hline 183 \quad 63 \end{array}$$
- (c)
$$\begin{array}{r} \text{km} \quad \text{m} \\ \boxed{1}\boxed{1} \quad \boxed{2} \quad \boxed{1} \\ 82 \quad 164 \\ 97 \quad 080 \\ +30 \quad 000 \\ \hline 209 \quad 244 \end{array}$$
- (d)
$$\begin{array}{r} \text{km} \quad \text{m} \\ 12375 \\ +15260 \\ \hline 27635 \end{array}$$
6. (a)
$$\begin{array}{r} \boxed{2}\boxed{12} \quad \boxed{5}\boxed{9}\boxed{10} \\ 1\cancel{3}\cancel{2}4.\cancel{8}\cancel{0}\cancel{0} \\ -1280.157 \\ \hline 0044.443 \end{array}$$
- (b)
$$\begin{array}{r} \boxed{1}\boxed{14} \quad \boxed{2} \quad \boxed{11} \\ 2463.10 \\ -1900.20 \\ \hline 0562.90 \end{array}$$
- (c)
$$\begin{array}{r} \boxed{2}\boxed{12} \quad \boxed{8}\boxed{10} \\ 7\cancel{3}\cancel{2}5.\cancel{9}\cancel{0} \\ -6250.02 \\ \hline 1075.88 \end{array}$$
- (d)
$$\begin{array}{r} \boxed{8}\boxed{12} \quad \boxed{7} \quad \boxed{11} \\ 9208.16 \\ -6803.61 \\ \hline 2404.55 \end{array}$$

Exercise 18.2

1. (a) $\because 1 \text{ kg} = 1000 \text{ g}$
 $12 \text{ kg} = 12 \times 1000 \text{ g}$
 $= 12000 \text{ g}$
- (b) $\because 1 \text{ kg} = 1000 \text{ g}$
 $7 \text{ kg } 256 \text{ g}$
 $= 7 \times 1000 + 256 \text{ g}$
 $= 7256 \text{ g}$

- (c) $\because 1 \text{ kg} = 1000 \text{ g}$
 $15 \text{ kg } 15 \text{ g} = 15 \times 1000 + 15 \text{ g}$
 $= 15015 \text{ g}$
2. (a) $\because 1 \text{ g} = 1000 \text{ mg}$
 $19 \text{ g} = 19 \times 1000 \text{ mg}$
 $= 19000 \text{ mg}$
- (b) $\because 1 \text{ g} = 1000 \text{ mg}$
 $25 \text{ g } 25 \text{ mg}$
 $= 25 \times 1000 + 25 \text{ mg}$
 $= 25025 \text{ mg}$
- (c) $\because 1 \text{ g} = 1000 \text{ mg}$
 $82 \text{ g } 82 \text{ mg} = 82 \times 1000 + 82 \text{ mg}$
 $= 82082 \text{ mg}$
3. (a) $\because 1 \text{ g} = \frac{1}{1000} \text{ kg}$
 $2387 \text{ g} = \frac{2387}{1000} \text{ kg}$
 $= 2.387 \text{ kg}$
- (b) $\because 1 \text{ g} = \frac{1}{1000} \text{ kg}$
 $6700 \text{ g} = \frac{6700}{1000} \text{ kg}$
 $= 6.7 \text{ kg}$
- (c) $\because 1 \text{ g} = \frac{1}{1000} \text{ kg}$
 $8080 \text{ g} = \frac{8080}{1000} \text{ kg} = 8.08 \text{ kg}$
4. (a)
- | | | |
|--|------------|------------|
| | g | mg |
| | <u>1</u> | |
| | 44 | 122 |
| | 75 | 000 |
| | +9 | 070 |
| | <u>128</u> | <u>192</u> |
- (b)
- | | | |
|--|-----------|------------|
| | kg | g |
| | <u>1</u> | |
| | 64 | 172 |
| | 8 | 400 |
| | +15 | 215 |
| | <u>87</u> | <u>787</u> |
- (c)
- | | | |
|--|-------------------|------------|
| | kg | g |
| | <u>1</u> <u>1</u> | |
| | 29 | 000 |
| | 31 | 950 |
| | +8 | 25 |
| | <u>61</u> | <u>775</u> |
- (d)
- | | | |
|--|-----------|-------------------|
| | g | mg |
| | <u>1</u> | <u>1</u> <u>1</u> |
| | 4 | 060 |
| | 19 | 175 |
| | +42 | 625 |
| | <u>65</u> | <u>860</u> |
5. (a)
- | | |
|--|---|
| | <u>10</u> |
| | <u>2</u> <u>1</u> <u>9</u> <u>0</u> <u>13</u> |
| | 2201.3 |
| | -1995.7 |
| | <u>1205.6</u> |
- (b)
- | | |
|--|---|
| | <u>13</u> |
| | <u>7</u> <u>12</u> <u>3</u> <u>10</u> <u>10</u> |
| | 1824.10 |
| | -1656.82 |
| | <u>0177.28</u> |
- (c)
- | | | |
|--|-----------------|------------------------------|
| | <u>11</u> | <u>4</u> <u>16</u> <u>10</u> |
| | 2183.570 | |
| | -1831.281 | |
| | <u>0352.289</u> | |
- (d)
- | | |
|--|--------------------|
| | <u>7</u> <u>12</u> |
| | 5138.24 |
| | -2020.31 |
| | <u>3117.93</u> |

Exercise 18.3

1. (a) $\because 1 \text{ kl} = 1000 \text{ l}$

$$15 \text{ kl} = 15 \times 1000 \text{ l}$$

$$= 15000 \text{ l}$$

(c) $\because 1 \text{ kl} = 1000 \text{ l}$

$$12 \text{ kl } 265 \text{ l} = 12 \times 1000 + 265 \text{ l} = 12265 \text{ l}$$

2. (a) $\because 1 \text{ l} = 1000 \text{ ml}$

$$28 \text{ l} = 28 \times 1000 \text{ ml}$$

$$= 28000 \text{ ml}$$

(c) $\because 1 \text{ l} = 1000 \text{ ml}$

$$10 \text{ l } 450 \text{ ml} = 10 \times 1000 + 450 \text{ ml} = 10450 \text{ ml}$$

3. (a) $\because 1000 \text{ l} = 1 \text{ kl}$

$$62000 \text{ l} = 62 \text{ kl}$$

(c) $\because 1000 \text{ l} = 1 \text{ kl}$

$$15255 \text{ l} = 15.255 \text{ kl}$$

(b) $\because 1 \text{ kl} = 1000 \text{ l}$

$$8 \text{ kl } 8 \text{ l}$$

$$= 8 \times 1000 + 8 \text{ l}$$

$$= 8008 \text{ l}$$

(b) $\because 1 \text{ l} = 1000 \text{ ml}$

$$7 \text{ l } 270 \text{ ml}$$

$$= 7 \times 1000 + 270 \text{ ml}$$

$$= 7270 \text{ ml}$$

(b) $\because 1000 \text{ l} = 1 \text{ kl}$

$$7280 \text{ l} = 7.280 \text{ kl}$$

4. (a)

<i>l</i>	<i>ml</i>
□	
34	000
47	020
+5	160
86	180

(b)

<i>l</i>	<i>ml</i>
□	□□
3	055
8	074
+12	135
23	264

(c)

<i>kl</i>	<i>l</i>
□	□
15	160
+9	075
24	235

(d)

<i>kl</i>	<i>l</i>
□	
7	115
84	070
+21	210
112	395

5. (a)

<i>l</i>	<i>cl</i>
□□	□□
35	84
-17	01
18	25
18	290

(b)

□□□
65237
-38905
26332

(c)

□□□□
6273.8
-5834.6
439.2

(d)

□□□□□
4250.400
-3596.146
654.254

Exercise 18.4

1. Mr Gupta travels on foot = 1 km 375 m
 Mr Gupta travels by bus = 5 km 725 m
 Mr Gupta travels by train = 12 km 150 m
 Total distance travelled by him =

$$\begin{array}{r}
 \text{km} \quad \text{m} \\
 \boxed{1} \quad \boxed{3} \boxed{7} \boxed{5} \\
 \quad 5 \quad 7 \quad 2 \quad 5 \\
 + 12 \quad 150 \\
 \hline
 19 \quad 250
 \end{array}$$

So, Mr Gupta travelled **19 km 250 m** in all.

2. Lakshmi buys silk cloth = 2 m 20 cm
 Lakshmi buys cotton cloth = 925 cm
 Total length of cloth she bought = $\begin{array}{r} \text{m} \quad \text{cm} \\ 2 \quad 020 \end{array}$
 So, Lakshmi buys **2m 945 cm**
 cloth in all.

$$\begin{array}{r}
 \text{m} \quad \text{cm} \\
 2 \quad 020 \\
 + \quad 925 \\
 \hline
 2 \quad 945
 \end{array}$$

3. Two heaps of rice together weigh = 5 kg 250 g
 One heap weighs = 3 kg 252 g

$$\begin{array}{r}
 \text{kg} \quad \text{g} \\
 \boxed{4} \quad \boxed{11} \boxed{14} \boxed{10} \\
 \quad 5 \quad 250 \\
 + 3 \quad 252 \\
 \hline
 1 \quad 998
 \end{array}$$

Other heap weighs = **1 998**

4. Container has oil = 5 l 250 ml
 Man takes out oil = 2 l 100 ml
 He spill oil = 1 l 200 ml

So, oil left in the container = 5 l 250 ml – 2 l 100 ml – 1 l 200 ml

$$\begin{array}{r}
 \text{l} \quad \text{ml} \\
 - 2 \quad 100 \\
 - 1 \quad 200 \\
 \hline
 3 \quad 300
 \end{array}
 \qquad
 \begin{array}{r}
 \text{l} \quad \text{ml} \\
 \boxed{4} \quad \boxed{12} \\
 \quad 5 \quad 250 \\
 - 3 \quad 300 \\
 \hline
 1 \quad 950
 \end{array}$$

5. Dick weighs = 25 kg 250 g
 Dick's father weighs = 3 times Dick's weight
 So, Dick's father weigh = **75 kg 750 g**

$$\begin{array}{r}
 \text{kg} \quad \text{g} \\
 \boxed{2} \quad 5 \quad \boxed{2} \quad 50 \\
 \quad \quad \quad \times 3 \\
 \hline
 75 \quad 750
 \end{array}$$

6. A tin has = 20 pastries

The tin with pastries = 1 kg 750 g

Each pastry weighs = 50 g

Empty tin weight = 1 kg 750 g – [50 × 20 gm]

$$= 1 \text{ kg } 750 \text{ g} - [1000 \text{ gm} = 1 \text{ kg}]$$

So, empty tin weight = **750 g**

$$\begin{array}{r}
 \text{kg} \quad \text{g} \\
 1 \quad 750 \\
 - 1 \quad 000 \\
 \hline
 0 \quad 750
 \end{array}$$

CHECK YOURSELF

1. to 4. As per answersheet.

19. Pictographs

1. to 7. Do yourself.
8. (a) There are 23 kite icons are three in the table so by the scale.
The sold kites = $23 \times 6 = 144$
- (b) It is visible that on Tuesday there are maximum icons in the table. So, on Tuesday there was the maximum sale.
- (c) On Monday and Friday the icons of kite are same. So the sale on these days was also the same.
- (d) On Wednesday there are minimums icons in the table. So on Wednesday there was the minimum sale.

CHECK YOURSELF

1. to 4. As per answersheet.

20. Geometry

Exercise 20.1

1. Do yourself.
2. (a) The given figure has 4 line segments. AB, BC, CD and DA.
(b) The given figure has 4 line segments. AB, BC, CD and DA.
(c) The given figure has 3 line segments. AB, BC and CA.
(d) The given figure has 6 line segments. AB, BC, CD, DE, EF and FA.
(e) The given figure has 6 lines segments AB, BC, CD, DE, EF and FA.
(f) The given figure has 4 line segments. AB, BC, CD and DA.
3. (a) The given figure has two end points on both the ends. So it represent line segment.
(b) The given figure has one end point and one arrow on the another end. So it represent ray.
(c) The given figure has two arrow on both the ends. So, it represent line.

Exercise 20.2

1. (a) It is visible from the given figure that point A is enclosed by the angle. So, it lies in interior of the angle POQ.
(b) It is visible from the given figure that point B is enclosed by the angle. So we can say that lies in interior of the angle POQ.
(c) It is visible from the given figure that point C is not enclosed by the angle. So, we can say that it lies in the exterior of the angle POQ.

- (d) It is visible from the given figure that point D is not enclosed by the angle. So we can say that it lies in the exterior of the angle POQ.
- (e) It is visible from the given figure that point P, O and Q lies on the common boundary.
2. (a) Vertex – B (b) Vertex – Q (c) Vertex – Y
sides – AB, BC sides – PQ, QR sides – XY, YZ
3. (a) It is visible from the given figure, that the angle is smaller than the 90° . So we can say that the angle is acute angle.
- (b) It is visible from the given figure that the angle is greater than the 90° . So we can say that it is an obtuse angle.
- (c) It is visible from the given figure that the angle is exactly measured to be 90° . So we can say that it is a right angle.
4. Do yourself.
5. We know that the measure less than 90° of a angle can be only in acute angle.

If the measure of the angle is exactly 90° then it is said to be a right angle.

And in the obtuse angle the measure of the angle is greater than 90° .

- (a) $40^\circ < 90^\circ$ So it is an acute angle.
- (b) $75^\circ < 90^\circ$ So it is an acute angle.
- (c) $91^\circ > 90^\circ$ So it is an obtuse angle.
- (d) $90^\circ = 90^\circ$ So it is a right angle.
- (e) $101^\circ > 90^\circ$ So it is an obtuse angle.
- (f) $180^\circ = 180^\circ$ So it is a straight angle.
- (g) $30^\circ < 90^\circ$ So it is an acute angle
- (h) $179^\circ > 90^\circ$ So it is an obtuse angle.
- (i) $111^\circ > 90^\circ$ So it is an obtuse angle.
- (j) $160^\circ > 90^\circ$ So it is an obtuse angle.

Exercise 20.3

1. We know that a simple closed curves are those figures, those encloses some part or area by all the sides leaving so boundary open.
- So, we can say that figures a, b, c and d are simple closed curves.
2. We know that a polygon has three or more than three sides forming it. Here we can see only c figure has three sides. So only (c) figure can be said to be a polygon.

3. (a) From the concept of circle we know that the distance of the centre from the circle is called the radius. So in the given figure we can say that OA, OB and OE are the radii of the circles.
- (b) The diameter is the chord of the circle which passes through the centre of the circle. So in the given figure we can say that AOB or AB is the chord passing through the centre of the circle. So, it is diameter.
- (c) The centre of a circle is the equidistant point from all the options on the circle. So in the given figure we can say that point O is equidistant from all points on the circle. So O is its centre.
- (d) The chord is the distance between two points on the circle. So, CD is the chord other than diameter.
4. (a) Given figure is the shape of a quadrilateral.
- (b) We can count from the given figure that it has 6 line segments in all i.e. AB, BC, CD, DA, BD and CA.
- (c) The line segment passing through A are AB, DA and CA.
- (d) It is visible that the given quadrilateral has 2 diagonals AC and BD.

5. Do yourself.

6. (a) \because Radius = 3 cm
 Diameter = $2 \times$ radius
 $= 2 \times 3$ cm
 $= 6$ cm
- (b) \because Radius = 4 cm
 Diameter = $2 \times$ radius
 $= 2 \times 4$ cm
 $= 8$ cm
- (c) \because Radius = 10 cm
 Diameter = $2 \times$ radius
 $= 2 \times 10$ cm
 $= 20$ cm
- (d) \because Radius = 8 cm
 Diameter = $2 \times$ radius
 $= 2 \times 8$ cm
 $= 16$ cm
- (e) \because Radius = 12 cm
 Diameter = $2 \times$ radius
 $= 2 \times 12$ cm = 24 cm

7. We know that, square has all its sides equal and the quadrilateral that has opposite sides equal and parallel is called rectangle. So we can say that figures **a** and **c** are of rectangle and figure **b** and **d** are of square.

8. (a) We know that diameter = $2 \times$ radius

$$\text{Radius} \quad \frac{\text{Diameter}}{2} \quad \frac{1.8}{2} \text{ m} = 0.9 \text{ m}$$

(b) \because diameter = 2.6 dm

$$\text{radius} \quad \frac{2.6}{2} \text{ dm} = 1.3 \text{ dm}$$

(c) \because diameter = 7.4 dm

$$\text{radius} \quad \frac{7.4}{2} \text{ dm} = 3.7 \text{ dm}$$

(d) \therefore diameter = 11.6 m
 radius $\frac{11.6}{2}$ m = 5.8 m

(e) \therefore diameter = 14 m
 radius $\frac{24.8}{2}$ m = 12.4 m

9. (a) We know that the circumference = $2 \times \pi \times r$

Where r is the radius of the circle.

Here radius = 35 cm

Then circumference = $2 \times \pi \times r$

$$2 \times \frac{22}{7} \times 35 = 44 \times 5 = 220 \text{ cm}$$

- (b) \therefore radius = 7.7 cm

circumference = $2 \pi r$

$$2 \times \frac{22}{7} \times 7.7$$

$$= 44 \times 1.1 = 48.4 \text{ cm}$$

- (c) \therefore radius = 21.7 dm

circumference = $2 \pi r$

$$2 \times \frac{22}{7} \times 21.7$$

$$= 44 \times 3.1 = 136.4 \text{ dm}$$

- (d) \therefore radius = 14.14 dm

circumference = $2 \pi r$

$$2 \times \frac{22}{7} \times 14.14$$

$$= 44 \times 2.02 \text{ dm} = 88.88 \text{ dm}$$

- (e) \therefore radius = 14 m

circumference = $2 \pi r$

$$2 \times \frac{22}{7} \times 14$$

$$= 44 \times 2 = 88 \text{ m}$$

CHECK YOURSELF

1. to 4. As per answersheet.

Unit-21. Symmetry






Exercise 21

1. (a) We know that dividing a symmetrical shapes into two equal parts is called its line of symmetry.

2. Do yourself.

3. Do yourself.

4. **A B C D E H M O U V W X Y**

5. (a)  (b)  (c)  (d)  (e) 

CHECK YOURSELF

1. to 4. As per answersheet.