

A BOOK OF MATHEMATICS

Teacher Manual
Class-6

Chapter-1

Exercise 1.1

- (a) 65, 32, 917 (b) 4, 78, 21, 910
(c) 6, 38, 70, 029
- (a) 90, 990 (b) 8, 00, 07, 001
(c) 32, 00, 99, 400
- (a) $740\ 215 = 40000$
(b) $2035612 = 5000$
- 99,99,999
- (a) 15768
 $= 10000 + 5000 + 700 + 60 + 8$
(b) $24,05,609 = 2000000 + 400000 + 0 + 5000 + 600 + 0 + 9$
- (a) 4404 (b) 105242
- 95,48,000
- 99,99,999
- (a) 1000 (b) 100 (c) 10
- 34485, 34567, 34586, 43544
- 7845755, 6462625, 34566558, 3438352
- 4, 6, 5, 7, 3, 8, 9, 507
Place value of 5 = 5,00,00,000
Place value of 5 = 500
Difference = 499,99,500

Exercise 1.2

- (a) $2\text{ km} = 2 \times 1000\text{ m} = 2000\text{ m}$
(b) $4\text{ kg } 200\text{ g} = 4 \times 1000 + 200\text{ g}$
 $= 4000 + 200\text{ g} = 4200\text{ g}$
- (a) $2\text{ kg} = 2 \times 1000\text{ g} = 2000\text{ g}$
(b) $3\text{ km} = 3 \times 1000\text{ m} = 3000\text{ m}$
- (a) $67892 > 57892$

4. Sonia = ₹ 245800, Mona = ₹ 85500
Difference = ₹ $(245800 - 85500)$
 $= ₹ 1,60,300$

5. (a) $1\text{ km} = 1000\text{ m}$ (b) 1 m
 $= 100\text{ cm}$
(c) $1\text{ km} = 100 \times 1000\text{ m}$
 $= 100000\text{ m}$

6. Total medicines = 200000 tablets
weight tablets = 20 mg total weight
 $= 200000 \times 20 = 40,00,000\text{ mg}$

7. Distance = 570 km
Time = 16 hours
Speed = $\frac{D}{T} = \frac{570}{16} = 35.625\text{ km/hr}$

8. Weight of 1 cylinder = 14 kg 200 g
Weight of 18 cylinder
 $= 14200\text{ g} \times 18$
 $= 255,600\text{ g}$

9. $7236 \times 64 = 469340$
 $7236 \times 56 = 405216$

$\begin{array}{r} 7\ 2\ 3\ 6 \\ \times 6\ 5 \\ \hline 3\ 5\ 1\ 8\ 0 \\ 4\ 3\ 4\ 1\ 6\ \times \\ \hline 4\ 6\ 9\ 3\ 4\ 0 \end{array}$	$\begin{array}{r} 7\ 2\ 3\ 6 \\ \times 5\ 6 \\ \hline 4\ 3\ 4\ 1\ 6 \\ 3\ 6\ 1\ 8\ 0\ \times \\ \hline 4\ 0\ 5\ 2\ 1\ 6 \end{array}$
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Difference $469340 - 405216$
 $= 64124$

10. Weight of 1 box = 4 kg 500 g
Total weight loaded = 800 kg
No. of boxes = $\frac{8000}{4.5} = 177\text{ boxes}$

11. Difference = 983563
Greatest No. 1398357

$$\begin{aligned}\text{Smallest No.} &= 1398357 - 983563 \\ &= 414794\end{aligned}$$

$$\begin{array}{r} 12. \quad 1000000 \\ - 6872326 \\ \hline 3127674 \end{array}$$

13. Population = 975165

Out 10 people teacher = 1

$$\text{No. of teachers} = \frac{975165}{15} = 65011$$

14. Product = 433375

$$\text{One No. 255, Other No.} = \frac{433375}{225}$$

15. No. of truck = 15

Total weight = 26850 kg

$$\text{Weight of truck} = \frac{26850}{15}$$

$$= 1790 \text{ kg}$$

Exercise 1.3

1. (a) 80 (b) 840

2. (a) 100 (b) 300

3. (a) 1000 (b) 9000

4. (a) $87 + 14 = 90 + 10 = 100$

(b) $57 + 46 = 60 + 50 = 110$

5. (a) $578 - 115 = 600 - 100 = 500$

Estimated Difference	Actual Difference
$\begin{array}{r} 600 \\ - 000 \\ \hline 500 \end{array}$	$\begin{array}{r} 578 \\ - 115 \\ \hline 463 \end{array}$

(b) $6258 - 1429$

$$= 6300 - 1400 = 4900$$

6. (a) $28 \times 53 = 30 \times 50 = 1500$

(b) $48 \times 73 = 50 \times 70 = 3500$

7. (a) $255 \times 350 = 300 \times 300 = 90000$

(b) $267 \times 146 = 300 \times 100 = 30000$

8. (a) $75 \div 23 = 80 \div 20 = 4$

(b) $87 \div 28 = 90 \div 30 = 3$

Exercise 1.4

1. (a) 14 = XIV (b) 43 = XLIII

(c) 96 = XCVI

2. (a) XLV = 45 (b) LIV = 54

(c) LXIX = 747

3. (a) Yes (b) No (c) Yes

4. (a) $7 \times (11 + 9) = 7 \times 20 = 140$

(b) $287590 = 2875(100 - 10)$
 $= 28700 - 2870 = 25830$

(c) $248 - (300 - 152)$
 $= 248 - 148 = 100$

Chapter-2

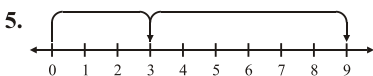
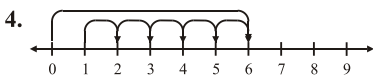
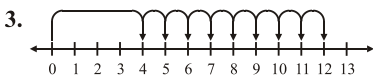
Exercise 2.1

1. (a) 12345

(b) 24569

2. (a) 20499

(b) 8006999



6. (a) 283 (b) 8049 (c) 63

7. (a) $\begin{array}{r} 612 \\ - 417 \\ \hline 195 \end{array}$

$\begin{array}{r} 195 \\ + 471 \\ \hline 612 \end{array}$

(b) $\begin{array}{r} 5216 \\ - 813 \\ \hline 4403 \end{array}$

$\begin{array}{r} 4403 \\ + 813 \\ \hline 5216 \end{array}$

8. (a) $\begin{array}{r} 4941 \\ - 2101 \\ \hline 2873 \end{array}$

(b) $\begin{array}{r} 313 \\ - 355 \\ \hline 716 \end{array}$

9. Smallest 5 digit no. = 10000

Largest 5 digit no. = 9999

Difference

$$\begin{array}{r} 10000 \\ - 9999 \\ \hline 00001 \end{array}$$

10. Population = 782611

Males = 416976

Females

$$\begin{array}{r} 782611 \\ - 416976 \\ \hline 365635 \end{array}$$

11. (a) $n + 4 = 5$ (b) $n + 7 = 16$

$$n = 9 - 4$$

$$n = 16 - 7$$

$$7$$

$$n = 5$$

$$n = 9$$

12. (a) 636 (b) 5645

$$\begin{array}{r} 636 \\ - 9 \\ \hline 054 \end{array}$$

$$\begin{array}{r} 5645 \\ - 99 \\ \hline 5546 \end{array}$$

13. $8937 \times 648 + 8937 \times 122 + 8937 \times 230$

$$\Rightarrow 8937 (648 + 122 + 230)$$

$$\Rightarrow 8937 \times (1000)$$

$$\Rightarrow 8937000$$

14. $999 \times 99999 \Rightarrow 9989901$

15. 3×5

= 15, yes it is an odd number

$$5 \times 7 = 35$$

16. Product = 29500

One number = 236

$$\text{Other number} = \frac{29500}{236} = 125$$

$$\begin{array}{r} 58 \\ 17 \overline{) 999} \\ \underline{85} \\ 149 \\ \underline{136} \\ 13 \\ \underline{13} \\ 0 \end{array} \quad \begin{array}{l} = 999 - 13 \\ = 986 \end{array}$$

18. $88 \times 49 + 7$

$$\Rightarrow 4312 + 7 \Rightarrow 4319$$

$$\begin{array}{r} 88 \\ \times 49 \\ \hline 1792 \\ 352 \times \\ \hline 4312 \end{array}$$

19. Cost of 1 notebook = ₹ 26

No of notebook in ₹ 312 = 12

$$\begin{array}{r} 12 \\ 26 \overline{) 312} \\ \underline{26} \\ 52 \\ \underline{52} \\ 0 \end{array}$$

20. Least 4 digit no = 1000

$$\Rightarrow 1000 - 16 \Rightarrow 984$$

$$\begin{array}{r} 24 \\ 41 \overline{) 1000} \\ \underline{82} \\ 180 \\ \underline{164} \\ 16 \end{array}$$

Exercise 2.2

1. (a) 729×9

$$\Rightarrow 729 \times (10 - 1)$$

$$\Rightarrow 729 \times 10 - 729 \times 1$$

$$\Rightarrow 7290 - 729$$

$$\Rightarrow 6561$$

(b) 246×99

$$\Rightarrow 246 \times (100 - 1)$$

$$\Rightarrow 246 \times 100 - 246$$

$$\Rightarrow 24600 - 246 \Rightarrow 24354$$

(c) 59×25

$$\Rightarrow (60 - 1) \times 25$$

$$\Rightarrow 1500 - 25 \Rightarrow 1475$$

2. (a) 6561 (b) 24354 (c) 1475

3. (a) 

(b) 

(c) 

Chapter-3

Exercise 3.1

1. (a) 11, 13, 17, 19, 23, 29, 31, 37
2. (a) 42, 44, 46, 48, 50, 52, 54, 56, 58
3. (a) 1, 3, 5, 7, 9, 11, 13, 15, 17, 19
4. (a) No (b) Yes (c) No (d) No
5. (a) $36 \rightarrow 19 + 17$
 (b) $42 \rightarrow 31 + 11$
 (c) $84 \rightarrow 41 + 43$
 (d) $50 \rightarrow 13 + 37$

Exercise 3.2

1. (a) No, ones place digit is not even
 (b) Yes, ones place digit is even
 (8)
 (c) No, ones place digit is not even
 (d) No, ones place digit is not even
2. (a) $2 + 3 + 4 + 6 + 9 + 3$
 $= 27$ is a multiple of 3
 $\therefore$ Yes, it is divisible by 3
 (b) $9 + 8 + 7 + 4 + 5$
 $= 33$, is multiple of 3
 $\therefore$ Yes, it is divisible by 3
 (c) $5 + 4 + 9 + 3 + 8 + 5 + 2$
 $= 36$ is a multiple of 3
 $\therefore$ Yes, it is divisible by 3
 (d) $8 + 3 + 7 + 5 + 4 + 1$
 $= 28$, is not a multiple of 3

$\therefore$ Yes, it is not divisible by 3

3. (a) 76892
 $\therefore$ 92 is divisible by 4
 $\therefore$ 76892 is divisible by 4
 (b) 98576
 $\therefore$ 76 is divisible by 4
 $\therefore$ 98576 is divisible by 4
 (c) 48484
 $\therefore$ 84 is divisible by 4
 $\therefore$ 48484 is divisible by 4
 (d) 98246
 $\therefore$ 46 is not divisible by 4
 $\therefore$ 98246 is not divisible by 4
4. (a) 346789
 $\therefore$ last digit is not 9, so it is not divisible by 5
 (b) 876590
 $\therefore$ last digit is 0, so it is divisible by 5
 (c) 678055
 $\therefore$ last digit is 5, so it is divisible by 5
 (d) 180004
 $\therefore$ last digit is not 0, or 4, so it is not divisible by 5
5. (a) 71124
 $\therefore$ It is divisible by 3
 $\therefore$ 71124 is divisible by 6
 (b) 78651
 $\therefore$ It is not divisible by 2 but divisible by 3
 (c) 543876
 $\therefore$ It is divisible by 2 and 3
 $\therefore$ 543876 is divisible by 6
 (d) 4180736
 $\therefore$ It is not divisible by 3
 $\therefore$ 4180736 is not divisible by 6
6. (a) 88364
 $\therefore$ Last 3 digit is not divisible

by 8

$\therefore 88364$ is not divisible by 8

(b) 27314

$\therefore$ Last 3 digit is not divisible by 8

$\therefore 27314$ is not divisible by 8

(c) 558880

$\therefore$ Last 3 digit is divisible by 8

$\therefore 558880$ is divisible by 8

(d) 680008

$\therefore$ Last 3 digit is divisible by 8

$\therefore 680008$ is divisible by 8

7. (a) 789651

Yes, it is divisible by 9

(b) 757900

No, it is not divisible by 9

(c) 4777704

Yes, it is divisible by 9

(d) 587096

No, it is not divisible by 9

8. (a) 567895 No

(b) 540980 Yes

(c) 70004 No

(d) 8463780 Yes

9. (a) 455400 $\Rightarrow$ Yes

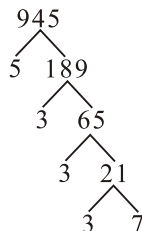
(b) 1000001 $\Rightarrow$ No

(c) 333111 $\Rightarrow$ No

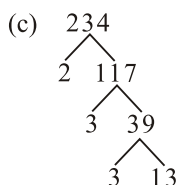
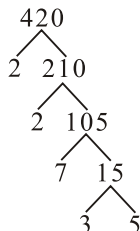
(d) 587309 $\Rightarrow$ No

Exercise 3.3

1. (a)



(b) 420



$$\begin{array}{r} 2. \text{ (a)} \quad \begin{array}{r} 3 \overline{) 1197} \\ \underline{3} \\ 7 \\ \underline{7} \\ 19 \\ \underline{19} \\ 1 \end{array} \end{array}$$

$$\text{ (b)} \quad \begin{array}{r} 3 \overline{) 4641} \\ \underline{7} \\ 13 \\ \underline{13} \\ 17 \\ \underline{17} \\ 1 \end{array}$$

$$\text{ (c)} \quad \begin{array}{r} 2 \overline{) 1210} \\ \underline{5} \\ 11 \\ \underline{11} \\ 11 \\ \underline{11} \\ 1 \end{array}$$

3. (a) 4, 8, 24

$$4 \rightarrow 2 \times 2$$

$$8 \rightarrow 2 \times 2 \times 2$$

$$24 \rightarrow 2 \times 2 \times 2 \times 3$$

$$\text{HCF} = 2 \times 2$$

$$= 4$$

(b) 15, 25, 35

$$15 \rightarrow 3 \times 5$$

$$25 \rightarrow 5 \times 5$$

$$35 \rightarrow 5 \times 7$$

$$\text{HCF} = 5$$

4. (a) 312, 216

$$\begin{array}{r} 216 \overline{) 312} \begin{array}{l} 1 \\ 216 \\ \hline 96 \end{array} \\ \begin{array}{r} 96 \overline{) 216} \begin{array}{l} 2 \\ 192 \\ \hline 24 \end{array} \\ \begin{array}{r} 24 \overline{) 96} \begin{array}{l} 4 \\ 96 \\ \hline 0 \end{array} \end{array} \end{array}$$

$$\text{HCF} = 24$$

(b) 135, 35, 85

$$\begin{array}{r}
 35 \overline{)85} 2 \\
 \underline{70} \\
 15 \overline{)35} 2 \\
 \underline{30} \\
 5 \overline{)15} 3 \\
 \underline{15} \\
 \times \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 5 \overline{)135} 27 \\
 \underline{10} \\
 35 \\
 \underline{35} \\
 \times \\
 \hline
 \end{array}$$

HCF = 5

$$\begin{array}{r}
 7 \overline{)434} \\
 \underline{7} 49 \\
 \underline{7} 7 \\
 1
 \end{array}$$

$$\begin{array}{r}
 2 \overline{)432} \\
 \underline{2} 16 \\
 \underline{2} 108 \\
 \underline{2} 54 \\
 \underline{3} 27 \\
 \underline{3} 9 \\
 \underline{3} 3 \\
 1
 \end{array}$$

5. $856 \overline{)936} 1$

$$\begin{array}{r}
 850 \\
 \underline{80} \overline{)850} 10 \\
 \underline{800} \\
 50 \overline{)80} 1 \\
 \underline{56} \\
 24 \overline{)56} 2 \\
 \underline{48} \\
 8 \overline{)24} 3 \\
 \underline{24} \\
 \times \\
 \hline
 \end{array}$$

Largest No. = 8

6. 960, 900, 720

$$\begin{array}{r}
 900 \overline{)960} 1 \\
 \underline{900} \\
 60 \overline{)900} 15 \\
 \underline{60} \\
 300 \\
 \underline{300} \\
 \times \\
 \hline
 \end{array}$$

Length of longest tape = 60 cm

7. (a) 59, 97

$$\begin{array}{r}
 59 \overline{)59} \\
 \underline{1} \\
 1
 \end{array}
 \quad
 \begin{array}{r}
 97 \overline{)97} \\
 \underline{1} \\
 1
 \end{array}$$

= Yes, it is co-primes

(b) 343, 432

No, it not co-primes

(c) 385, 621

$$\begin{array}{r}
 5 \overline{)385} \\
 \underline{7} 77 \\
 \underline{11} 11 \\
 1
 \end{array}
 \quad
 \begin{array}{r}
 3 \overline{)621} \\
 \underline{3} 207 \\
 \underline{23} 69 \\
 \underline{3} 3 \\
 1
 \end{array}$$

No, it is not co-primes

8. (a) $\frac{161}{207} = \frac{7}{9}$ (b) $\frac{296}{481} = \frac{8}{13}$

Exercise 3.4

1. (a) 15, 20, 48

$$\begin{array}{r}
 2 \overline{)15, 20, 48} \\
 \underline{2} 15, 10, 24 \\
 \underline{2} 15, 5, 12 \\
 \underline{2} 15, 5, 6 \\
 \underline{3} 15, 5, 3 \\
 \underline{5} 5, 5, 1 \\
 1, 1, 1
 \end{array}$$

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

(b) 25, 45, 105

$$\begin{array}{r}
 5 \overline{)25, 45, 105} \\
 \underline{5} 5, 9, 21 \\
 \underline{3} 1, 9, 21 \\
 \underline{3} 1, 3, 7 \\
 \underline{7} 1, 1, 7 \\
 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{LCM} &= 5 \times 5 \times 3 \times 3 \times 7 \\
 &= 1575
 \end{aligned}$$

2. (a) 14, 42, 63

$$\begin{array}{r|l} 2 & 14, 42, 63 \\ \hline 3 & 7, 21, 63 \\ \hline 3 & 7, 7, 21 \\ \hline 7 & 7, 7, 7 \\ \hline & 1, 1, 1 \end{array}$$

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

- (b) 15, 35, 70

$$\begin{array}{r|l} 2 & 15, 35, 70 \\ \hline 5 & 15, 35, 35 \\ \hline 3 & 3, 7, 7 \\ \hline 7 & 1, 7, 7 \\ \hline & 1, 1, 1 \end{array}$$

$$\text{LCM} = 2 \times 5 \times 3 \times 7 = 210$$

3. 2 | 18, 24, 36, 42

$$\begin{array}{r|l} 2 & 9, 12, 18, 21 \\ \hline 2 & 9, 6, 9, 21 \\ \hline 3 & 9, 3, 9, 21 \\ \hline 3 & 3, 1, 3, 7 \\ \hline 7 & 1, 1, 1, 7 \\ \hline & 1, 1, 1, 1 \end{array}$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 \times 7 \\ = 504$$

$$\text{Sin is subtracted } 504 - 6 \\ = 498$$

4. 2 | 24, 36, 54

$$\begin{array}{r|l} 2 & 12, 18, 27 \\ \hline 2 & 6, 9, 27 \\ \hline 3 & 3, 9, 27 \\ \hline 3 & 1, 3, 9 \\ \hline 3 & 1, 1, 3 \\ \hline & 1, 1, 1 \end{array}$$

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ = 216$$

5 as a remainder in each

$$\therefore \text{Number} = 216 + 5 = 221$$

5. (a) Product of no's = HCF $\times$ LCM

$$87 \times 145 = 29 \times 435$$

$$12615 = 12615$$

$$\begin{array}{r|l} 3 & 87 \\ \hline 29 & 29 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 5 & 145 \\ \hline 29 & 29 \\ \hline & 1 \end{array} \quad \text{HCF} = 29$$

$$\begin{array}{r|l} 3 & 87, 145 \\ \hline 5 & 29, 145 \\ \hline 29 & 29, 29 \\ \hline & 1 \end{array} \quad \text{LCM} = 435$$

$\therefore$ Hence proved

- (b) 186, 403

$$186 \times 403$$

$$= 31 \times 2418$$

$$74958 = 74958$$

$$\begin{array}{r|l} 2 & 186 \\ \hline 3 & 93 \\ \hline 31 & 31 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 13 & 403 \\ \hline 31 & 31 \\ \hline & 1 \end{array} \quad \text{HCF} = 31$$

$$\begin{array}{r|l} 2 & 186, 403 \\ \hline 3 & 93, 403 \\ \hline 13 & 31, 403 \\ \hline 31 & 31, 31 \\ \hline & 1 \end{array} \quad \begin{array}{l} \text{LCM} = 2418 \\ \text{Hence Proved.} \end{array}$$

6. Product of two no's = HCF $\times$ LCM

$$2560 = 320 \times \text{HCF}$$

$$\text{HCF} = \frac{2560}{320} = 8$$

7. 5 | 15, 20, 25

$$\begin{array}{r|l} 5 & 3, 4, 5 \\ \hline 3 & 3, 4, 1 \\ \hline 2 & 1, 2, 1 \\ \hline 2 & 1, 1, 1 \end{array}$$

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

After 300 seconds

$$\begin{array}{r}
 8. \begin{array}{l} 2 \overline{) 2, 3, 4, 5, 6} \\ 2 \overline{) 1, 2, 3, 5, 3} \\ 3 \overline{) 1, 3, 1, 5, 3} \\ 5 \overline{) 1, 1, 1, 5, 1} \\ \hline 1, 1, 1, 1, 1 \end{array} \\
 \begin{array}{r} 166666 \\ 60 \overline{) 10000000} \\ \underline{60} \\ 400 \\ \underline{360} \\ 400 \\ \underline{360} \\ 400 \\ \underline{360} \\ 400 \\ \underline{360} \\ 40 \end{array}
 \end{array}$$

$$\begin{aligned}
 \text{LCM} &= 2 \times 2 \times 3 \times 5 = 60 \\
 10000000 - 40 &= 99,99,960
 \end{aligned}$$

Chapter-4

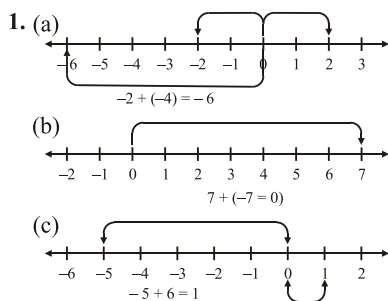
Exercise 4.1

- (a) Loss of ₹ 100 (c) Gain of ₹ 700
(c) Decrease in weight
(d) 30 km towards South
- (a) + ₹ 200 (b) - ₹ 2500
(c) + ₹ 16 m (d) - ₹ 2 km
- (a) -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4
(b) -16, -15, -14, -13, -12, -11, -10, -9, -8
- Do it yourself
- (a) $0 > -12$ (b) $-15 < -5$
(c) $8 > -8$ (d) $318 > -356$
- (a) 1, 2, 3
(b) -9, -10, -11, -12, -13, -14
- (a) $-8 > -18$ (b) $-3 < 7$
(c) $0 < 8$ (d) $17 < 56$
- (a) $|17| = 17$ (b) $|-8| = 8$
(c) $|-16| = 16$ (d) $|25| = 25$
- (a) -7 (b) 13 (c) -1 (d) 0
- (a) -10 (b) 11 (c) 15 (d) -6

11. Do it yourself.

- (a) -8, -7, -3, -1, 0, 11, 14
(b) -12, -6, -5, 0, 2, 8, 15
- (a) 7, 5, 3, 0, -2, -6, -12
(b) 11, 9, 2, 0, -8, 11, -13
- (a) 9 (b) 15 (c) -3
- 4 = Negative Integer
-1 = Negative Integer
2 = Positive Integer
4 = Positive Integer

Exercise 4.2



- (a) $237 + (-453)$
 $= 237 - 453 = -216$
(b) $-225 + (106)$
 $= -225 - 106 = -331$
- (a) 59 (b) -157 (c) 0
- (a) $[6 + (-2)] + (-7)$
 $\Rightarrow [6 - 2] + (-7)$
 $\Rightarrow 4 - 7 \Rightarrow -3$
(b) $[(0 \ 4) + (-3)] + 4$
 $\Rightarrow [-4 - 3] + 4$
 $\Rightarrow -7 + 4 \Rightarrow -3$
- (a) $7 + (-11) + 3 + (-2)$
 $\Rightarrow 7 - 11 + 3 - 2$
 $\Rightarrow -4 + 3 - 2$
 $\Rightarrow -1 - 2 \Rightarrow -3$
(b) $(-7) + (-12) + 9 + 10$
 $\Rightarrow -7 - 12 + 9 + 10$
 $\Rightarrow -10 + 10 \Rightarrow 0$

$$6. [70 - (-60)] + (-130)$$

$$\Rightarrow [70 + 60] - 130$$

$$\Rightarrow 130 - 130$$

$$\Rightarrow 0$$

$$7. (a) (-12) + 7 + (-21)$$

$$\Rightarrow -12 + 7 - 21$$

$$\Rightarrow -5 - 21$$

$$\Rightarrow -26$$

$$(b) (-67) + (-13) + (-86) + 150$$

$$\Rightarrow -67 - 13 - 86 + 150$$

$$\Rightarrow -80 - 86 + 150$$

$$\Rightarrow -166 + 150$$

$$\Rightarrow -16$$

$$8. -8 + 23 + (-32) + (-17) + (-63)$$

$$\Rightarrow -8 + 23 - 32 - 17 - 63$$

$$\Rightarrow 15 - 32 - 17 - 63$$

$$\Rightarrow -17 - 17 - 63$$

$$\Rightarrow -34 - 63$$

$$\Rightarrow -97$$

$$9. (a) -39 - (55)$$

$$\Rightarrow -39 - 55 \Rightarrow -94$$

$$(b) -531 - (-252)$$

$$\Rightarrow -531 + 252 \Rightarrow -279$$

$$(c) 0 - (-59)$$

$$\Rightarrow 0 + 59 \Rightarrow 59$$

$$(d) -24 - 10 \Rightarrow -34$$

$$10. (a) -32 - (-72)$$

$$\Rightarrow -32 + 72 \Rightarrow 40$$

$$(b) -23 - 27 - (-53)$$

$$\Rightarrow -50 + 53 \Rightarrow 3$$

$$(c) -21 - 82 + 94 - 14$$

$$\Rightarrow -103 + 94 - 14 \Rightarrow -23$$

$$(d) -82 + (-72) + (-270)$$

$$\Rightarrow -82 - 72 - 270$$

$$\Rightarrow -154 - 270$$

$$\Rightarrow -424$$

$$11. \text{I}^{\text{st}} \text{ Step}$$

$$(-502 + 3) - 499$$

$$\Rightarrow -361 - (-499)$$

$$\Rightarrow -361 + 499$$

$$\Rightarrow 138$$

$$\text{II}^{\text{st}} \text{ Step, } 361 + (-722)$$

$$\Rightarrow 361 - 722$$

$$\Rightarrow -361$$

$$12. -45 \quad x = -32$$

$$x = -32 + 45$$

$$x = 13$$

Chapter-5

Exercise 5.1

$$1. (a) \frac{2}{5} (b) \frac{5}{6} (c) \frac{3}{10}$$

$$2. (a) \text{Two-fifth} (b) \text{One-third} \\ (c) \text{Nine-fourteenth}$$

$$3. \text{Left Apples} = \frac{10}{30} = \frac{1}{3}$$

$$4. (a) \frac{4}{4} (b) \frac{3}{4} (c) \frac{2}{6} = \frac{1}{3}$$

$$5. (a) \text{Answer sheet}$$

$$6. \text{Fraction} = \frac{20}{60} = \frac{1}{3}$$

$$7. \text{Fraction} = \frac{31}{365}$$

$$8. (a) \frac{9}{2} (b) \frac{8}{3} (c) \frac{18}{9} = \frac{2}{1}$$

$$9. (a) 24 \div 4 \quad (b) 19 \div 6 \\ (c) 3 \div 17$$

$$10. (a) \frac{3}{8} (b) \frac{7}{16} (c) \frac{4}{9}$$

$$11. \text{Fraction} = \frac{30}{80} = \frac{3}{8}$$

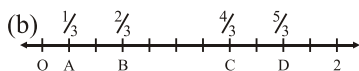
$$12. (a) \text{Fraction} = \frac{10}{45} = \frac{2}{9}$$

$$(b) \text{Fraction} = \frac{15}{45} = \frac{1}{3}$$

$$(c) \text{Fraction} = \frac{20}{45} = \frac{4}{9}$$

Exercise 5.2

1.



2. (a) $\frac{3}{4}D = 16$

Equivalent	Fraction
$= \frac{3 \times 4}{4 \times 4} = \frac{12}{16}$	

(b) $\frac{48}{72}N = 16$

Equivalent Fraction
$= \frac{48 \div 3}{72 \div 3} = \frac{16}{24}$

3. (a) $\frac{72}{90} = \frac{36}{45} = \frac{4}{5}$ (b) $\frac{150}{90} = \frac{15}{9} = \frac{5}{3}$

(c) $\frac{9}{21} = \frac{3}{7}$ (d) $\frac{13}{65} = \frac{1}{5}$

4. (a) $\frac{7}{9}$

(i) $\frac{7}{9} \times \frac{2}{2} = \frac{14}{18}$

(ii) $\frac{7}{9} \times \frac{3}{3} = \frac{21}{27}$

(iii) $\frac{7}{9} \times \frac{4}{4} = \frac{28}{36}$

(iv) $\frac{7}{9} \times \frac{5}{5} = \frac{35}{45}$

(b) $\frac{8}{13}$

(i) $\frac{8}{13} \times \frac{2}{2} = \frac{16}{26}$

(ii) $\frac{8}{13} \times \frac{3}{3} = \frac{24}{39}$

(iii) $\frac{8}{13} \times \frac{4}{4} = \frac{32}{52}$

(iv) $\frac{8}{13} \times \frac{5}{5} = \frac{40}{65}$

5. (a) $\frac{3}{8} = \frac{15}{40}$ $\frac{3}{8} = \frac{3}{8}$ Yes

(b) $\frac{2}{3} = \frac{33}{22}$ $\frac{2}{3} \neq \frac{3}{2}$ No

Exercise 5.3

1. (a) $\frac{1}{5}, \frac{7}{10}, \frac{3}{4}, \frac{5}{7}$

LCM = 140

$$\Rightarrow \frac{1 \times 28}{5 \times 28} = \frac{28}{140}$$

$$\Rightarrow \frac{1 \times 14}{10 \times 14} = \frac{14}{140}$$

$$\Rightarrow \frac{3 \times 35}{4 \times 35} = \frac{105}{140}$$

$$\Rightarrow \frac{5 \times 20}{7 \times 20} = \frac{100}{140}$$

5	5, 10, 4, 7
2	1, 2, 4, 7
2	1, 1, 2, 7
7	1, 1, 1, 7
	1, 1, 1, 1

Like fraction

$$= \frac{28}{140}, \frac{14}{140}, \frac{105}{140}, \frac{100}{140}$$

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

LCM = 60

$$\Rightarrow \frac{1 \times 20}{3 \times 20} = \frac{20}{60}$$

$$\Rightarrow \frac{2 \times 12}{5 \times 12} = \frac{24}{60}$$

$$\Rightarrow \frac{3 \times 15}{4 \times 15} = \frac{45}{60}$$

$$\Rightarrow \frac{1 \times 10}{6 \times 10} = \frac{10}{60}$$

3		3, 5, 4, 6
2		1, 5, 4, 2
2		1, 5, 2, 1
5		1, 5, 1, 1
		1, 1, 1, 1

Like fraction = $\frac{20}{60}, \frac{24}{60}, \frac{45}{60}, \frac{10}{60}$

2. (a) $\frac{7}{9} = \frac{[49]}{63}$

(b) $\frac{11}{15} = \frac{[99]}{135}$

3. (a) $6\frac{1}{7} = \frac{43}{7}$ (b) $14\frac{1}{7} = \frac{99}{7}$

4. (a) No (b) Yes (c) Yes (d) Yes

5. (a) No (b) Yes (c) No (d) Yes

6. (a) $\frac{27}{5} = 5\frac{2}{5}$

(b) $\frac{81}{11} = 7\frac{4}{11}$

(c) $\frac{55}{17} = 3\frac{4}{17}$

(d) $\frac{111}{25} = 4\frac{11}{25}$

Exercise 5.4

1. (a) $\frac{5}{9}$ or $\frac{3}{4} \Rightarrow \frac{5 \times 4}{9 \times 4} = \frac{20}{36}$

$\Rightarrow \frac{3 \times 9}{4 \times 9} = \frac{27}{36}$ $\frac{3}{4}$ is greater

(b) $\frac{11}{14}$ or $\frac{26}{35}$

$\Rightarrow \frac{11 \times 5}{14 \times 5} = \frac{55}{70}$

$\Rightarrow \frac{26 \times 2}{35 \times 2} = \frac{52}{70}$

$\frac{11}{14}$ is greater

(c) $\frac{4}{7}$ or $\frac{2}{3}$

$\Rightarrow \frac{4 \times 3}{7 \times 3} = \frac{12}{21} \Rightarrow \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$

$\frac{2}{3}$ is greater

2. (a) $\frac{5}{7}$ or $\frac{3}{7} \Rightarrow \frac{3}{7}$ is smaller

(b) $\frac{7}{26}$ or $\frac{10}{39}$

$\Rightarrow \frac{7}{26} \times \frac{3}{3} = \frac{21}{78}$

$\Rightarrow \frac{10}{39} \times \frac{2}{2} = \frac{20}{78}$

$\frac{10}{39}$ is smaller

(c) $\frac{5}{9}$ or $\frac{3}{5}$

$\Rightarrow \frac{5}{9} \times \frac{5}{5} = \frac{25}{45} \Rightarrow \frac{3}{5} \times \frac{9}{9} = \frac{27}{45}$

$\frac{5}{9}$ is smaller

3. (a) $\frac{2}{5}, \frac{3}{10}, \frac{7}{5}$

$\Rightarrow \frac{2 \times 2}{5 \times 2} = \frac{4}{10}$

$\Rightarrow \frac{3 \times 1}{10 \times 1} = \frac{3}{10}$

$\Rightarrow \frac{7 \times 2}{5 \times 2} = \frac{14}{10}$

$\Rightarrow \frac{3}{10}, \frac{2}{5}, \frac{7}{5}$

(b) $\frac{3}{4}, \frac{5}{6}, \frac{23}{24}$

$\Rightarrow \frac{3 \times 6}{4 \times 6} = \frac{18}{24}, \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$

$\frac{23 \times 1}{24 \times 1} = \frac{23}{24}$

$\Rightarrow \frac{3}{4}, \frac{5}{6}, \frac{23}{24}$

$$\begin{aligned}
 \text{(c)} \quad & \frac{2}{3}, \frac{1}{6}, \frac{5}{9}, \frac{7}{12} \\
 & \Rightarrow \frac{2 \times 12}{3 \times 12} = \frac{24}{36} \\
 & \frac{1 \times 6}{6 \times 6} = \frac{24}{36}, \frac{5 \times 4}{9 \times 4} = \frac{20}{36} \\
 & \frac{7 \times 3}{12 \times 3} = \frac{21}{36} \\
 & \Rightarrow \frac{1}{6}, \frac{5}{9}, \frac{7}{12}, \frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 4. \text{ (a)} \quad & \frac{7}{9}, \frac{5}{12}, \frac{6}{24}, \frac{3}{15} \\
 & \Rightarrow \frac{7 \times 40}{9 \times 40} = \frac{280}{360} \\
 & \frac{5 \times 30}{12 \times 30} = \frac{150}{360}, \frac{6 \times 15}{24 \times 15} = \frac{90}{360} \\
 & \frac{3 \times 24}{3 \times 24} = \frac{72}{360} \\
 & \frac{15 \times 24}{15 \times 24} = \frac{360}{360} \\
 & \Rightarrow \frac{7}{9}, \frac{5}{12}, \frac{6}{24}, \frac{3}{15}
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & \frac{2}{3}, \frac{1}{6}, \frac{5}{9}, \frac{7}{12} \\
 & \Rightarrow \frac{2 \times 12}{3 \times 12} = \frac{12}{36}, \frac{1 \times 6}{6 \times 6} = \frac{6}{36} \\
 & \frac{5 \times 4}{9 \times 4} = \frac{20}{36}, \frac{7 \times 3}{12 \times 3} = \frac{21}{36}
 \end{aligned}$$

$$\frac{2}{3}, \frac{7}{12}, \frac{5}{9}, \frac{1}{6}$$

$$\begin{aligned}
 \text{(c)} \quad & \frac{5}{7}, \frac{3}{8}, \frac{9}{11} \\
 & \Rightarrow \frac{5 \times 88}{7 \times 88} = \frac{440}{616} \\
 & \frac{3 \times 77}{8 \times 77} = \frac{231}{616}, \frac{9 \times 56}{11 \times 56} = \frac{504}{616} \\
 & \Rightarrow \frac{9}{11}, \frac{5}{7}, \frac{3}{8}
 \end{aligned}$$

Exercise 5.5

$$1. \text{ (a)} \quad \frac{2}{7} + \frac{5}{9} \quad \text{LCM} = 63$$

$$\frac{2 \times 9}{7 \times 9} = \frac{18}{63}, \frac{5 \times 7}{9 \times 7} = \frac{35}{63}$$

$$\frac{18}{63} + \frac{35}{63} = \frac{53}{63}$$

$$\text{(b)} \quad \frac{1}{3} + 3\frac{2}{5} \Rightarrow \frac{4}{3} + \frac{17}{5}$$

$$\text{LCM} = 15 \Rightarrow \frac{20+51}{15} = \frac{71}{15}$$

$$\text{(c)} \quad \frac{12}{31} + \frac{16}{36} \Rightarrow \frac{12+16}{31} = \frac{28}{31}$$

$$2. \text{ (a)} \quad \frac{7}{13} - \frac{5}{26} \quad \text{LCM} = 26$$

$$\Rightarrow \frac{14-5}{26} = \frac{9}{26}$$

$$\text{(b)} \quad 2\frac{3}{4} - 1\frac{1}{5} \Rightarrow \frac{11}{4} - \frac{6}{5}$$

$$\text{LCM} = 20$$

$$\Rightarrow \frac{55-24}{20} = \frac{31}{20}$$

$$\text{(c)} \quad 2\frac{3}{10} - 1\frac{7}{15} \Rightarrow \frac{23}{10} - \frac{22}{15}$$

$$\text{LCM} = 30$$

$$\Rightarrow \frac{69-44}{30} = \frac{25}{30} = \frac{5}{6}$$

$$3. \text{ (a)} \quad \frac{53}{6} - \frac{27}{8} + \frac{13}{12}$$

$$\text{LCM} = 24$$

$$\Rightarrow \frac{212-81+26}{24} \Rightarrow \frac{157}{24}$$

$$\text{(b)} \quad \frac{7}{8} + \frac{17}{6} - \frac{25}{12}$$

$$\text{LCM} = 24$$

$$\Rightarrow \frac{21+68-50}{24} \Rightarrow \frac{39}{24}$$

$$\text{(c)} \quad \frac{12}{1} - \frac{7}{2} + \frac{21}{5}$$

$$\text{LCM} = 10$$

$$\Rightarrow \frac{120-35+42}{10} \Rightarrow \frac{127}{10}$$

$$\begin{aligned}
 4. \quad & 7\frac{1}{15} - 7\frac{7}{15} \\
 & \Rightarrow \frac{106}{15} - \frac{82}{15} \\
 & \Rightarrow \frac{106-82}{15} = \frac{24}{15} = \frac{8}{5}
 \end{aligned}$$

$$\begin{aligned}
 5. \quad & \frac{5}{7} \text{ or } \frac{9}{14} \\
 & \Rightarrow \frac{5 \times 2}{7 \times 2} = \frac{10}{14} \\
 & \Rightarrow \frac{9 \times 1}{14 \times 1} = \frac{9}{14} \Rightarrow \frac{5}{7} \text{ is greater}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad & 6\frac{2}{5} + 3\frac{1}{4} \\
 & \Rightarrow \frac{32}{5} + \frac{13}{4} \\
 & \Rightarrow \frac{32 \times 4 + 12 \times 5}{20} \\
 & \Rightarrow \frac{128 + 65}{20} = \frac{193}{20} \\
 & \text{II}^{\text{nd}} \text{ Step} \\
 & \Rightarrow \frac{12}{1} - \frac{193}{20} \\
 & \Rightarrow \frac{240 - 193}{20} = \frac{47}{20}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad & \text{Length} = \frac{7}{8} \text{ m} \\
 & 1 \text{ piece} = \frac{1}{4} \text{ m} \\
 & \text{Other piece} = \frac{7}{8} - \frac{1}{4} \\
 & \Rightarrow \frac{7-2}{8} \\
 & \Rightarrow \frac{5}{8}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad & \text{Money} = ₹ 100 \\
 & \text{Sister} = ₹ 35\frac{4}{5} = \frac{179}{5}
 \end{aligned}$$

$$\begin{aligned}
 \text{Left} &= 100 - \frac{175}{5} \\
 & \Rightarrow \frac{500 - 179}{5} = \frac{321}{5}
 \end{aligned}$$

$$9. \text{ Money} = ₹ 200, \text{ Brother} = ₹ 115\frac{1}{5}$$

$$\begin{aligned}
 & \Rightarrow ₹ \frac{576}{5} \text{ Left} = ₹ \frac{200}{1} - \frac{576}{5} \\
 & \Rightarrow \frac{1000 - 576}{5} \\
 & \Rightarrow \frac{424}{5}
 \end{aligned}$$

$$10. \text{ Two pens} = ₹ 13\frac{2}{5}, \text{ Pencil box} = ₹$$

$$\begin{aligned}
 & 15 \\
 \text{Total} &= \frac{67}{5} + \frac{15}{1} \\
 & \Rightarrow \frac{67 + 75}{5} = \frac{142}{5}
 \end{aligned}$$

$$11. \text{ Milk} = 3\frac{1}{2} \text{ l, Consumed} = 1\frac{1}{5} \text{ l}$$

$$\begin{aligned}
 \text{Left} &= \frac{7}{2} - \frac{6}{5} \Rightarrow \frac{35 - 12}{10} \\
 & \Rightarrow \frac{23}{10} \text{ litre} \Rightarrow 1 \text{ kg} = 1000 \text{ g}
 \end{aligned}$$

$$12. \text{ Boy 1} = 15\frac{1}{12} \text{ kg} = \frac{31}{2} \text{ kg}$$

$$\text{Boy 2} = 16\frac{3}{4} \text{ kg} = \frac{67}{4} \text{ kg}$$

$$\text{Boy 3} = 17\frac{1}{5} \text{ kg} = \frac{86}{5} \text{ kg}$$

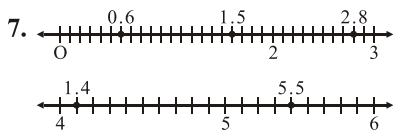
$$\begin{aligned}
 \text{Total weight} &= \frac{31}{2} + \frac{67}{4} + \frac{86}{5} \\
 & \Rightarrow \frac{310 + 335 + 344}{20}
 \end{aligned}$$

$$\Rightarrow \frac{989}{20} \text{ kg}$$

Chapter-6

Exercise 6.1

- (a) 59.009 (b) 561.11
(c) 30.7 (d) 12.012
- (a) $2 + 0 + 0 + \frac{6}{1000}$
(b) $\frac{3}{10} + \frac{2}{100} + \frac{4}{1000}$
(c) $70 + 7 + \frac{8}{10} + \frac{3}{100}$
(d) $30 + 4 + \frac{6}{10} + \frac{7}{100} + \frac{5}{1000}$
- (a) 57.79 (b) 907.86
(c) 49.048 (d) 669.316
- (a) $\frac{204}{100} = \frac{102}{50} = \frac{51}{25}$
(b) $\frac{26}{10} = \frac{13}{5}$
(c) $\frac{412}{10} = \frac{206}{5}$
(d) $\frac{642}{100} = \frac{321}{50}$
- (a) $\frac{5}{2} = 2.5$ (b) $\frac{129}{8} = 16.1$
(c) $\frac{183}{21} = 9.15$ (d) $\frac{77}{4} = 19.25$
- (a) 24.83
2 = tens, 4 = ones
8 = tenths, 3 = hundredth
(b) 56.075
5 = tens, 6 = ones
7 = hundredth, 5 = thousandths



Exercise 6.2

- (a) 0.700 (b) 4.337 (c) 2.370
(d) 5.200
- (a) 123.19 [$>$] 102.91
(b) 216.42 [$>$] 216.02
(c) 123.23 [$<$] 123.25
- (a) 0.06, 0.6, 06, 6.6, 66.6
(b) 13.696, 15.6, 112.17, 142.51
(c) 6.05, 6.4, 6.45, 6.5, 6.54
- (a) 73.03, 8.73, 8.073, 7.33, 7.3
(b) 30.3, 30.03, 3.3, 3.03, 3.003
(c) 88.8, 88.08, 8.88, 8.088, 8.008
- (a) $\frac{15}{100} = \frac{3}{20}$
(b) $\frac{48}{100} = \frac{12}{25}$
(c) $\frac{224}{1000} + \frac{56}{250} = \frac{28}{125}$
- (a) $\frac{64}{10} = \frac{32}{5} = 6\frac{2}{5}$
(b) $\frac{836}{100} = \frac{418}{50} = \frac{209}{25} = 8\frac{9}{25}$
(c) $\frac{7004}{1000} = \frac{3502}{500} = \frac{1751}{250} = 7\frac{1}{250}$

7. (a) 2.3 (b) 6.25 (c) 3.6

Exercise 6.3

- (a) 4 km 365 m
 $\Rightarrow 1 \text{ km} = 1000 \text{ m}$
 $\Rightarrow 4\frac{365}{1000} = 4.365 \text{ km}$
(b) 6 k
 $\Rightarrow 1 \text{ km} = 1000$
 $\Rightarrow \frac{6}{1000} = 0.006 \text{ km}$
(c) 35 m
 $\Rightarrow 1 \text{ km} = 100$

$$\frac{35}{1000} = 0.035 \text{ km}$$

2. (a) 3 kg 348 g

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

$$\Rightarrow 3 \frac{348}{1000} = 3.348 \text{ kg}$$

(b) 5 kg 35 g

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

$$\Rightarrow 5 \frac{35}{1000} = 5.035 \text{ kg}$$

(c) 8 g

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

$$\Rightarrow \frac{8}{1000} = 0.008 \text{ kg}$$

3. (a) ₹ 18 and 25 paise

$$1 \text{ rupee} = 100 \text{ paise}$$

$$\Rightarrow 18 \frac{25}{100}$$

$$\Rightarrow ₹ 18.25$$

(b) 5 paise

$$1 \text{ rupee} = 100 \text{ paise}$$

$$\Rightarrow \frac{5}{100} = 0.05 \text{ rupee}$$

(c) ₹ 9 and 8 paise

$$1 \text{ rupee} = 100 \text{ paise}$$

$$\Rightarrow 9 \frac{8}{100}$$

$$\Rightarrow ₹ 9.08$$

Exercise 6.4

1. (a)
$$\begin{array}{r} 4.00 \\ + 2.60 \\ \hline 11.05 \\ 18.04 \end{array}$$
 (b)
$$\begin{array}{r} 43.910 \\ + 108.431 \\ \hline 532.101 \\ 984.351 \end{array}$$

(c)
$$\begin{array}{r} 19.200 \\ + 0.007 \\ \hline 0.640 \\ \hline 22.847 \end{array}$$

2. (a)
$$\begin{array}{r} 12.000 \\ - 9.326 \\ \hline 02.674 \end{array}$$
 (b)
$$\begin{array}{r} 0.97 \\ - 0.43 \\ \hline 0.54 \end{array}$$

(c)
$$\begin{array}{r} 0.60 \\ - 0.18 \\ \hline 0.42 \end{array}$$

3. (a) $3.5 - 2.43 + 0.075$

$$\Rightarrow 1.07 + 0.075$$

$$\Rightarrow 1.82$$

(b) $52.9 - 231.666 + 204$

$$\Rightarrow 256.29 - 231.666$$

$$\Rightarrow 24.624$$

(c) $2.987 - 1.25 - 0.54$

$$\Rightarrow 1.737 - 0.54$$

$$\Rightarrow 1.197$$

4. Bus = 18 km 350 m

Car = 9 km 262 m

Walked = 840 m

Total distance

$$\begin{array}{r} 18.350 \\ + 9.262 \\ \hline 0.840 \\ \hline 18.452 \text{ K m} \end{array}$$

18 km 452 m

5. Ist bag = 3 kg 200 g

IInd bag = 5 kg 675 g

IIIrd bag = 6 kg 115 g

Total Rice weight

$$\begin{array}{r} 3.200 \\ + 5.675 \\ \hline 6.115 \\ \hline 14.990 \text{ K g} \end{array}$$

14 kg 990 g

6. Notebook = ₹ 65.50

Pen = ₹ 22.80

Textbook = ₹ 206.40

Total spend

$$\begin{array}{r}
 065 \cdot 50 \\
 + 022 \cdot 80 \\
 \hline
 206 \cdot 40 \\
 \hline
 294 \cdot 70
 \end{array}$$

Cine = ₹ 500

Left = ₹ (500 - 294.70)

= ₹ 305.30

7. $1000 - 89.376 \Rightarrow 910.624$

8. Bananas = 57 kg

Apples = 3.75 kg

Orange = 5.85 kg

Total

$$\begin{array}{r}
 4 \cdot 57 \\
 3 \cdot 75 \\
 + 5 \cdot 85 \\
 \hline
 14 \cdot 17
 \end{array}$$

Consumed = 2.65 kg

Left

$$\begin{array}{r}
 14 \cdot 17 \text{ kg} \\
 - 2 \cdot 65 \text{ kg} \\
 \hline
 11 \cdot 52 \text{ kg}
 \end{array}$$

= 11.52 kg

Chapter-7

Exercise 7.1

1. Perimeter of equilateral $\Delta = 35$

2. Student = T

No of notebook each student get

= 3

Total notebook = $3 \times T = 3T$

3. (a) $n + 6$ (b) $\frac{a}{8}$ (c) $q - p$ (d) $m \times 20$

4. $\angle A = x$, $\angle B = x$

$\angle A + \angle B + \angle C = 180^\circ$

$x + x + \angle C = 180^\circ$

$\angle C = 180^\circ - 2x$

5. (a) $4 \times m$ (b) $3 \times t$ (c) $2 \times d$

6. (a) like (b) Unlike (c) Unlike

7. (a) Trinomials (b) monomials

(c) Trinomials (d) Trinomials

(e) Binomials

8. (a) 2 (b) -3 (c) 5

9. (a) -3a (b) $5y^2z^2$ (c) -4

10. $3x^4, -5x^3y, \frac{3}{7}x^2y^2, -2z^2$

Exercise 7.2

1. $-15yz^2 + 15z^2y + 13yz^2 \Rightarrow 13yz^2$

2. $-4xy^2 + 3xy + 7yz^2 + 4xy + 6y^2$
 $-8z^2y + 6z^2y + 9xy^2 - 10xy$
 $\Rightarrow -4xy^2 + 6xy^2 + 9xy^2 + 3xy$
 $+4xy - 10xy + 7yz^2 - 8yz^2$
 $-8yz^2 + 6yz^2$
 $\Rightarrow 11xy^2 + 3xy + 5yz^2$

3. $7xyz - 3xyz + 5xyz$

$\Rightarrow 4xyz + 5xyz \Rightarrow 9xyz$

4. $8x^4 + 5x^3 + 7 - 9x^2 + 8x^2$

$-6x^3 + 4 + 5x^4$

$\Rightarrow 13x^4 - x^3 - x^2 + 11$

5. $-5n - (14n)$

$\Rightarrow -5n - 14n$

$-19n$

6. $4xy + 5x^2 + y^2 - 8 -$

$(-x^2 - 6y^2 + 3xy + 5)$

$\Rightarrow 4xy + 5x^2 + y^2 - 8 + x^2$

$+6y^2 - 3xy - 5$

$\Rightarrow 1xy + 6x^2 + 7y^2 - 13$

7. $a^2b + ba^3 + 2ab^3 - 3a^3b - 6ab^3$

$+ 4a^2b$

$\Rightarrow 3a^3b - 4ab^3$

$$\begin{aligned}
 8. \quad & 4x^3 - 2x^2 + 5x + 3 + \\
 & 4x^2 - 9x + 8 - 3x^3 \\
 \Rightarrow & 1x^2 + 2x^2 - 4x + 11 - \\
 & (8x^2 + 4x^2 - 9x + 5) \\
 \Rightarrow & 1x^3 - 8x^3 + 2x^2 - 4x^2 \\
 & -4x + 9x + 11 - 5 \\
 \Rightarrow & -7x^3 - 2x^2 + 5x + 6
 \end{aligned}$$

$$\begin{aligned}
 9. \quad & -8a^3b + 5b^2 - (10a^3b - 6b^2 + 5) \\
 \Rightarrow & -8a^3b + 5b^2 - 10a^3b + 6b^2 - 5 \\
 \Rightarrow & -18a^3b + 11b^2 - 5
 \end{aligned}$$

Exercise 7.3

$$1. \quad a = 2, \quad b = 1, \quad c = 3$$

$$\begin{aligned}
 & 2a + b - 5c \\
 \Rightarrow & 2 \times 2 + (-1) - 5 \times 3 \\
 \Rightarrow & 4 - 1 - 15 \\
 \Rightarrow & 3 - 15 \\
 \Rightarrow & -12
 \end{aligned}$$

$$2. \quad m = -2, \quad n = 4, \quad p = -3$$

$$\begin{aligned}
 & 3n - m - p \\
 \Rightarrow & 3 \times 4 - (-2) - (-3) \\
 \Rightarrow & 12 + 2 + 3 \\
 \Rightarrow & 17
 \end{aligned}$$

$$3. \quad A = 3x^2 - 4x + 8$$

$$\begin{aligned}
 & B = x^2 + 7x - 10 \\
 & C = -6x^2 - 3x + 2 \\
 & A - B - C \\
 \Rightarrow & 3x^2 - 4x + 8 - (x^2 + 7x - 10) \\
 & -(-6x^2 - 3x + 2) \\
 \Rightarrow & 3x^2 - 4x + 8 - x^2 - 7x + \\
 & 10 + 6x^2 + 3x - 2 \\
 & 8x^2 - 8x + 16
 \end{aligned}$$

$$4. \quad A = x - 2, \quad B = y + 2, \quad C = -x + 2y$$

$$\begin{aligned}
 & A + B + C = 3y \\
 \Rightarrow & x - 2 + y + 2 - x + 2y \\
 \Rightarrow & 3y \quad \text{LHS} = \text{RHS}
 \end{aligned}$$

$$5. \quad A = 4a^2 - 3a^2b + 8b$$

$$B = 3a^3 + 4a^3b - 7$$

$$C = -7a^3 - a^2b - b$$

$$\begin{aligned}
 & A + B + C = 0 \\
 \Rightarrow & 4a^3 - 3a^2b + 8b + 3a^3 + 4a^2b \\
 & -7a^3 - a^2b - b \\
 \Rightarrow & 7a^3 + 1a^2b + 1b - 7a^3 - 1a^2b - 1b \\
 \Rightarrow & 0 \quad \text{LHS} = \text{RHS}
 \end{aligned}$$

$$6. \quad C = 35$$

$$\begin{aligned}
 & \frac{9}{5}C + 32 \\
 \Rightarrow & \frac{9}{5} \times 35 + 32 \\
 \Rightarrow & 63 + 32 \Rightarrow 95
 \end{aligned}$$

$$7. \quad x = -1$$

$$\begin{aligned}
 & 4x + x - 2x^2 + x - 1 \\
 \Rightarrow & 4 \times -1 + (-1) - 2(-1)^2 + (-1) - 1 \\
 \Rightarrow & -4 - 1 - 2 - 1 - 1 \\
 \Rightarrow & -5 - 2 - 1 - 1 \Rightarrow -7 - 1 - 1 \\
 \Rightarrow & -8 - 1 \Rightarrow -9
 \end{aligned}$$

$$8. \quad a = 18, \quad b = 10, \quad c = 6$$

$$\begin{aligned}
 & abc \\
 \Rightarrow & 18 \times 10 \times 6 \Rightarrow 1080
 \end{aligned}$$

Chapter-8

Exercise 8.1

$$1. \quad (a) \frac{1}{3}x = 24 \quad (b) x + 6 \quad (c) y + 5$$

$$2. \quad (a) n + 3 = 12$$

$$n = 12 - 3$$

$$n = 9$$

$$(b) \frac{p}{2} - 5 = 18$$

$$\frac{p}{2} = 18 - 5 \quad \frac{p}{2} = 13$$

$$p = 13 \times 2 = 26$$

$$(c) 2 - 6a = -18$$

$$6a = 2 + 18$$

$$a = \frac{20}{6} = \frac{10}{3}$$

3. Other no $= x - 6$

4. $x = \frac{1}{3}y$

5. $z = n + 4$

6. Toffees each children get $= \frac{x}{y}$

7. Total marks $= x + 80$

8. (a) $2n - 4$

(b) $\frac{1}{5}(2n + 3)$

Exercise 8.2

1. $2n - 3 = n - 1$

x	LHS	RHS
0	$0 - 3 = -3$	0
1	$2 - 3 = -1$	1
2	$4 - 3 = 1$	2

$x = 2$ LHS = RHS

$\therefore$ the solution is $x = 2$

2. $5x + 2x = 5$

$\Rightarrow 5 \times 5 + 2$

$\Rightarrow 25 + 2$

$\Rightarrow 27$

3. (a) $y - 2 = 2$

y	LHS	RHS
0	$0 - 2 = -2$	2
1	$1 - 2 = -1$	2
2	$2 - 2 = 0$	2

3	$3 - 2 = 1$	2
4	$4 - 2 = 2$	2

$x = 4$ LHS = RHS

$\therefore$ the solution is $x = 4$

(b) $2x - 9 = x$

x	LHS	RHS
0	$0 - 9 = -9$	0
1	$2 - 9 = -7$	1
2	$4 - 9 = -5$	2
3	$6 - 9 = -3$	3
4	$8 - 9 = -1$	4
5	$10 - 9 = 1$	5
6	$12 - 9 = 3$	6
7	$14 - 9 = 5$	7
8	$16 - 9 = 7$	8
9	$18 - 9 = 9$	9

$x = 9$ LHS = RHS

$\therefore$ the solution is $x = 9$

(c) $19z - 7 = z$

Z	LHS	RHS
0	19	$7 + 0 = 7$
2	19	$7 + 2 = 9$
4	19	$7 + 4 = 11$
6	19	$7 + 6 = 13$

8	19	$7 + 8 = 15$
10	19	$7 + 10 = 17$
12	19	$7 + 12 = 16$

$$x = 12 \quad \text{LHS} = \text{RHS}$$

$\therefore$ the solution is $x = 12$

4. Buadth = x Length = $3x$

$$\text{Perimeter} = 2(x + 3x) = 2 \times 4x = 8x$$

$$\text{Area} = 3x \times x = 3x^2$$

5. (a) $x = 1$

$$3x - 7 = -4$$

$$3 \times 1 - 7 = -4$$

$$3 - 7 = -4 - 4 = -4$$

$$\text{LHS} = \text{RHS}$$

Hence proved

(b) $x = \frac{7}{2}$

$$16x^2 + 4x - 5 = 205$$

$$\Rightarrow 16 \times \left(\frac{7}{2}\right)^2 + 4 \times \frac{7}{2} - 5 = 205$$

$$\Rightarrow 16 \times \frac{49}{4} + 14 - 5 = 205$$

$$\Rightarrow 196 + 14 - 5 = 205$$

$$\Rightarrow 210 - 5 = 205$$

$$\Rightarrow 205 = 205$$

$$\text{LHS} = \text{RHS}$$

Hence proved

(c) $x = -5$, $2x^2 + 5x - 3 = 22$

$$\Rightarrow 2 \times (-5)^2 + 5(-5) - 3 = 22$$

$$\Rightarrow 50 - 25 - 3 = 22$$

$$\Rightarrow 25 - 3 = 22$$

$$\Rightarrow 22 = 22$$

$$\text{LHS} = \text{RHS}$$

Hence proved

6. (a) $[] + 5 = 13$

$$\Rightarrow 13 - 5 = [8]$$

(b) $12 - [] = 7$

$$\Rightarrow 12 - 7 = [5]$$

(c) $8 \times [] = 32$

$$\frac{32}{8} = [4]$$

(d) $\frac{[]}{[9]} = (4 - 1) \times 3$

7. (a) $m - 4 = 6$

$$m = 6 + 4 \quad m = 10$$

(b) $x - 7 = 4$

$$n = 4 + 7$$

$$n = 11$$

(c) $6y - 5 = 19$

$$6y = 19 + 5$$

$$6y = 24 \quad y = \frac{24}{6} = 4$$

(d) $n + 6 = 10$

$$n = 10 - 6 \quad n = 4$$

(e) $12 - n = 6$

$$n = 12 - 6 \quad n = 6$$

(f) $x + 5 = 9$

$$n = 9 - 5 \quad n = 4$$

(g) $3p + 4 = 22$

$$3p = 22 - 4$$

$$p = \frac{18}{3} = 6$$

(h) $8y - 16 = 0$

$$8y = 16$$

$$y = \frac{16}{8} = 2$$

(i) $11x - 2 = 20$

$$11n = 22n = \frac{22}{11} = 2$$

8. (a) $\frac{y}{3} - 7 = 2$

$$\Rightarrow \frac{y}{3} = 2 + 7$$

$$\Rightarrow y = 9 \times 3 \quad y = 27$$

(b) $\frac{x+8}{4} = 2$

$$n + 8 = 8x = 8 - 8x = 0$$

$$(c) \frac{x}{7} - 2 = 5$$

$$\Rightarrow \frac{x}{7} = 5 + 2$$

$$\Rightarrow n = 7 \times 7$$

$$\Rightarrow 49$$

$$(d) 10(2 - x) = 4(x - 9)$$

$$\Rightarrow 20 - 10x = 4x - 36$$

$$\Rightarrow 20 + 36 = 4x + 10x$$

$$\Rightarrow 14x = 56$$

$$\Rightarrow x = \frac{56}{14} = 4$$

Chapter-9

Exercise 9.1

1. (a) 2.5 to 50 m

$$\Rightarrow 2.5 \text{ m} = 250 \text{ cm}$$

$$\Rightarrow \frac{250 \text{ cm}}{50} = 5:1$$

- (b) 60 min to 2.5 hours

$$\Rightarrow 2.5 \text{ hours} = 150 \text{ min}$$

$$\Rightarrow \frac{150 \text{ min}}{60 \text{ min}} = 5:2$$

- (c) 30 min to 1.5 min

$$1.5 \text{ hours} = 90 \text{ min}$$

$$\Rightarrow \frac{30}{90} = 1:3$$

- (d) 20 paise to ₹ 1

$$\Rightarrow ₹ 1 = 100 \text{ paise}$$

$$\Rightarrow \frac{25}{100} = 1:4$$

2. Aarshi = $\frac{3}{5} \times 110 = ₹ 66$

$$\text{Arpit} = \frac{2}{5} \times 110 = ₹ 22$$

3. Cost of dozen bananas = 60

$$\text{Cost of 4 orange} = 24 = 24 \times 3$$

$$1 \text{ dozen orange} = 72$$

$$\text{Ratio} = \frac{60}{72} = \frac{5}{6} = 5:6$$

4. (a) Salary = ₹ 30000

$$\text{Spend} = ₹ 25000$$

$$\text{Ratio} = \frac{30000}{25000} = 1:5$$

- (b) Sques = 5000

$$\text{Spend} = 25000$$

$$\text{Ratio} = \frac{5000}{25000} = 1:5$$

5. Sides Ratio = 2 : 3 : 4

$$= 2x : 3x : 4x$$

$$\text{Perimeter} = 63$$

$$2x + 3x + 4x = 63$$

$$9x = 63 \Rightarrow x = \frac{63}{9} = 7$$

$$\text{Side} = 2 \times 7 = 14 = 3 \times 7 = 21$$

$$= 4 \times 7 = 28$$

6. A : B = 3 : 5 B : C = 7 : 9

$$\text{LCM} = 5, 7 = 35$$

$$A : B = 3 : 5 = 21 : 35$$

$$B : C = 7 : 9 = 35 : 45$$

$$A : B : C = 21 : 35 : 45$$

7. (a) $\frac{3}{5} = \frac{[]}{15} \Rightarrow \frac{45}{5} = [9]$

$$(b) \frac{[]}{11} = \frac{12}{22} \Rightarrow [6] = \frac{12 \times 11}{22}$$

$$(c) \frac{6}{[]} = \frac{12}{30} \Rightarrow [9] = \frac{30 \times 6}{12}$$

$$(d) \frac{9}{13} = \frac{27}{[]} \Rightarrow [9] = \frac{27 \times 13}{9}$$

8. (a) 4 : 5

$$(i) \frac{4}{5} \times \frac{2}{2} = \frac{8}{10} \quad (ii) \frac{4}{5} \times \frac{3}{3} = \frac{12}{15}$$

- (b) 7 : 11

$$(i) \frac{7}{11} \times \frac{2}{2} = \frac{14}{22} \quad (ii) \frac{7}{11} \times \frac{3}{3} = \frac{21}{33}$$

9. Car

$$D = 200 \text{ km}, T = 4 \text{ hours}$$

$$S = \frac{D}{T} = \frac{200}{4} = 50 \text{ km/hr}$$

Bus

$$D = 160, T = 2 \text{ hours}$$

$$S = \frac{D}{T} = \frac{160}{2} = 80 \text{ km/hr}$$

$$\text{Ratio} = \frac{50}{80} = 5 : 8$$

10. Cost of apples = ₹ 50 per kg

Cost of grapes = ₹ 20 per 250 gm

$$= 20 \times \frac{80}{100} = ₹ 16/\text{kg}$$

$$\text{Ratio} = \frac{50}{16} = 5 : 8$$

11. No. of boys 50, 40, 35, 30

No. of girls 30, 24, 21, 18

12. Distance = 3 : 2

$$\frac{3}{2} = \frac{[]}{400} = \frac{3 \times 400}{2} = 600$$

13. R : N : J = 2 : 3 : 5

$$R : N = 2 : 3$$

$$\frac{R}{12} = \frac{2}{3} = R = \frac{2 \times 12}{3}$$

R = 8 medal, Nidhi = 12 medals

$$N : J = 3 : 5 \Rightarrow \frac{12}{J} = \frac{3}{5}$$

$$J = \frac{12 \times 5}{3}$$

20 medals

$$14. \frac{2}{3} : \frac{4}{8} \Rightarrow \frac{2}{3} : \frac{1}{2} \Rightarrow 4 : 3$$

15. 9 : 15

$$\Rightarrow \frac{9}{15} \times \frac{2}{2} = \frac{18}{30}$$

$$\Rightarrow \frac{9}{15} \times \frac{3}{3} = \frac{27}{45} \Rightarrow \frac{9}{15} \times \frac{4}{4} = \frac{36}{60}$$

16. Length = 117 cm

$$\text{Ratio} = 6 : 7$$

$$\text{I}^{\text{st}} \text{ part} = \frac{6}{13} \times 117 = 54 \text{ cm}$$

$$\text{II}^{\text{nd}} \text{ part} = \frac{7}{13} \times 117 = 63 \text{ cm}$$

17. A : B : C = 4 : 2 : 1

$$₹ 4200$$

$$A = \frac{4}{7} \times 4200 = 2400$$

$$B = \frac{2}{7} \times 4200 = 1200$$

$$C = \frac{1}{7} \times 4200 = 600$$

Exercise 9.2

1. (a) $\frac{8}{10} = \frac{12}{15}$ True

(b) $\frac{1}{2} = \frac{15}{36}$ True

(c) $\frac{6}{8} = \frac{10}{12}$ False

2. $\frac{7}{17} :: \frac{x}{50}$
 $x = 25$ Third team = 25

3. 5 days = ₹ 625

$$1 \text{ day} = \frac{625}{5} = ₹ 125$$

$$₹ 1500 = \frac{1500}{125} = 12 \text{ days}$$

4. 4 hours = 200 km

$$1 \text{ hour} = \frac{200}{4} = 50 \text{ km}$$

$$500 \text{ km} = \frac{500}{50} = 10 \text{ hours}$$

5. Tree shadow = 20 m

Poll height = 12 m

Poll shadow = 10 m

$$\text{Tree height} = \frac{12}{10} \times 20 \text{ m} = 24 \text{ m}$$

$$6. \frac{L}{W} = \frac{5}{3} \quad \frac{L}{18} = \frac{5}{3}$$

$$L = \frac{5 \times 18}{3} = 30 \text{ cm}$$

$$7. (a) \frac{72}{x} \therefore \frac{56}{42}$$

$$x = \frac{72 \times 42}{56} \quad x = 54$$

$$(b) \frac{5}{x} \therefore \frac{x}{125}$$

$$x \times x = 5 \times 125 \quad x \times x = 625$$

$$x^2 = (25)^2 \quad x = 25$$

Exercise 9.3

1. Cost of 5 litre petrol = ₹ 275

$$\text{Cost of 1 ltr petrol} = ₹ \frac{275}{5} = 55$$

$$\therefore \text{Cost of 15 ltr petrol} = ₹ 55 \times 15 = ₹ 825$$

2. Weight of 8 books = 5 kg

$$\text{Weight of 1 book} = \frac{5}{8} \text{ kg}$$

$$\text{Weight of 12 books}$$

$$\frac{5}{8} \times 12 = \frac{15}{2} = 7.5 \text{ kg}$$

3. 10 days = ₹ 2850

$$1 \text{ day} = \frac{2850}{10} = ₹ 285$$

$$30 \text{ day} = ₹ 285 \times 30 = ₹ 855$$

4. 16 notebooks = ₹ 400

$$1 \text{ notebook} = \frac{400}{16}$$

$$6 \text{ notebooks} = \frac{400}{16} \times 6 = ₹ 150$$

5. ₹ 900 = 36

$$₹ 1 = \frac{36}{900}$$

$$₹ 1250 = \frac{36}{900} \times 1250 = 50$$

6. 7 m = ₹ 294

$$1 \text{ m} = \frac{294}{7} = 42$$

$$5 \text{ m} = 42 \times 5 = ₹ 210$$

7. 20 ltr = ₹ 2040

$$1 \text{ ltr} = ₹ \frac{2040}{20} = 102$$

$$\text{Rate} = ₹ 102 \text{ ltr}$$

8. D = 90 km T = 3 hours

$$S = \frac{D}{T} = \frac{90}{3} = 30 \text{ km/hours}$$

9. Total weight = 80.05 kg

$$\text{I}^{\text{st}} \text{ bag} = 32.57 \text{ kg}$$

$$\text{II}^{\text{nd}} \text{ bag} = 42.82 \text{ kg}$$

$$\text{II}^{\text{rd}} \text{ bag} = \text{Total (weight of 2 bags)} \\ = (80.05 - 75.39) \text{ kg} = 4.66 \text{ kg}$$

10. Journey = 169 km

$$\text{Bus} = 149.58 \text{ km}$$

$$\text{Rickshaw} = 15.32 \text{ km}$$

$$\text{Foot} = \text{Journey} - (\text{B} + \text{R}) \\ = 169 - 164.90 = 4.10 \text{ km}$$

Chapter-10

Exercise 10.1

1. (a) AB, BC, CD

$$(b) \text{PO, OR, RS, ST, TU, UV}$$

2. (a) AB and EF (b) AB and CD

$$(c) \text{G and H (d) CD and EF}$$

3.  Infinite Lines

4. (a) A,B,C,D,E (b) AD (c) AE, BE, CE

5. AO and AE

6. (a) p and q (b) r and q (c) m and q
(d) AC and AD (e) r

Exercise 10.2

1. (a) Open (b) Closed (c) Open
(d) Close
2. (a) A, B, C
(b) C, E
(c) D, G
3. (a) Not (b) Polygon (c) Polygon
(d) Not
4. (a) AB, BC, CD, DE, EF, FG, GA
(b) A, B, C, D, E, F, G
(c) AB and BC (d) A and B
(e) AC, AD, AE, AF, BD, BE, BF, BG, CE, CF, CG, DG, DF, EG

Exercise 10.3

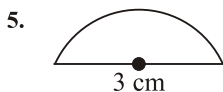
1. (a) Vertex = O
Arms = OA and OB
(b) Vartex = O
Arms = OA and OB
2. Interior = A, B, N
Exterior = K, L, M
On the angle = Q, O, P
3. (a) $\angle ADC$, $\angle DCB$, $\angle CBA$, $\angle BAC$
(b) $\angle KRB$, $\angle KRA$, $\angle BRO$, $\angle ARO$, $\angle ROC$, $\angle ROD$, $\angle COM$, $\angle DOM$
4. (a) $\angle 1 = \angle CBA$ or $\angle ABC$
 $\angle 2 = \angle BAE$ or $\angle EAB$
 $\angle 3 = \angle BAD$ or $\angle DAB$
(b) $\angle 1 = \angle AOC$ or $\angle COA$

$$\angle 2 = \angle AOB \text{ or } \angle BOA$$

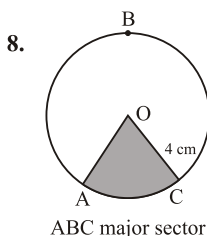
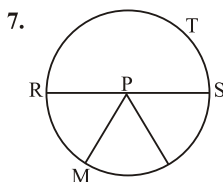
$$\angle 3 = \angle BOC \text{ or } \angle COB$$

Exercise 10.4

1. (a) L, M, N (b) Q, P, R
(c) D, E, F (d) A, B, C
2. (a) 5 (b) 13 (c) 20
3. (a) U, Z (b) W, Y (c) X, V
4. (a) ABFE, AEDB, ABCE, BCDE
(b) ABE, BCE, BEF, CDE
(c) AEBC, AEBF
(d) AEDB, BFDC



6. Radius = 2 cm
Largest (diameter) $2 \times = 4$ cm



Chapter-11

Exercise 11.1

1. Do yourself
2. When the difference in length in not large

3. Eight, $AB \parallel DC$ and $AD \parallel BC$

4. Do yourself

5. Do yourself

6. Do yourself

7. C lies between A and B

Exercise 11.2

1. (a) West (b) West (c) North
(d) South

2. (a) $\angle ABD$, $\angle ABE$
(b) $\angle EBC$, $\angle EBF$
(c) $\angle GBD$
(d) $\angle ABC$

3. $\frac{3}{4}$ of a revolution

4. $x + 82^\circ + 25^\circ = 180^\circ$ (Linear pair)
 $x + 110^\circ = 180^\circ$
 $x = 180^\circ - 110^\circ = 70^\circ$

5. (a) Acute (b) Obtuse
(c) Straight (d) Reflex

6. (a) $2\frac{1}{2} \times 90$
 $= \frac{5}{2} \times 90 = 225$
(b) $\frac{4}{5} \times 180^\circ = 144^\circ$
(c) $\frac{1}{2} \times 180^\circ = 90^\circ$
(d) $\frac{2}{5} \times 360^\circ = 144^\circ$

7. 90°

8. 10 right angles

9. Draw it yourself

10. (a) 150° (b) 90°

Exercise 11.3

1. Draw it yourself

2. (a) Obtuse Angled
(b) Acute Angled
(c) Obtuse Angled

3. $110^\circ + x + x = 180^\circ$
 $2x = 70^\circ$ $x = 35^\circ$
Other two angles = $35^\circ, 35^\circ$

4. $55^\circ + 55^\circ + x = 180^\circ$
 $x = 180^\circ - 110^\circ$ $x = 70^\circ$

5. Draw sketch

6. Four diagonals

7. Square

8. (a) Yes (b) Yes (c) Yes (d) No
(e) Yes

Exercise 11.4

1. (a) Ice Cube, Dice
(b) Birthday cap, Ice cream cone
(c) Football, Marbles

2. (a) (iii) (b) (vi) (c) (i)
(d) (iv) (e) (v) (f) (ii)

3. (a) Sphere (b) Cube
(c) Cone (d) Cuboid
(e) Cuboid (f) Cuboid

Chapter - 12

Do it yourself

Chapter - 13

Do it yourself

Chapter-14

Exercise 14.1

1. (a) Perimeter = $4 \times a$
 $= 4 \times 40 = 160$ cm
(b) Perimeter = $2(l + b)$
 $= 2(15 + 10)$

- $= 2 \times 25 = 50 \text{ cm}$
 (c) Perimeter $= (2 + 3 + 3 + 2) \text{ cm}$
 $= 10 \text{ cm}$
 (d) Perimeter $= 4 \times 5$
 $= 4 \times 10 = 40 \text{ cm}$
 (e) Perimeter $= 4 \times 5 + 8 \times 2$
 $= 20 + 16 = 36 \text{ cm}$
 (f) Perimeter $= 4 \times 8 = 32 \text{ cm}$
2. Square park side $= 60 \text{ m}$
 Perimeter $= 4 \times 60 = 240 \text{ m}$
 Cost of fencing m $= ₹ 20$
 Cost of fencing $240 \text{ m} = ₹ 20 \times 240$
 $= ₹ 4800$
3. Table length $= 4 \text{ m}$
 Wide $= 25 \text{ m}$
 Perimeter of table $= 2(l + b)$
 $= 2(4 + 25) \text{ m}$
 $= 2 \times 29 = 58 \text{ m}$
 Cost of 1 m less $= ₹ 8$
 Cost of 58 m less $= ₹ 8 \times 58$
 $= ₹ 464$
4. Perimeter $= 660 \text{ m}$
 Length $= 210$
 $2(l + b) = 660$
 $2(210 + b) = 660$
 $210 + b = 330$
 $b = 330 - 210 = 120 \text{ m}$
5. Length $= 45 \text{ m}$
 Breadth $= 32 \text{ m}$
 Perimeter $= 2(l + b)$
 $= 2(45 + 32)$
 $= 2 \times 77$
 $= 154 \text{ m}$
 Cost of 1 m $= ₹ 12$
 Cost of 154 m $= ₹ 12 \times 154$
 $= ₹ 1848$
6. Rectangular box length $= 30 \text{ cm}$
 Breadth $= 12 \text{ cm}$

$$\text{Perimeter} = 2(l + b)$$

$$= 2(30 + 12)$$

$$= 2 \times 42$$

$$= 84 \text{ cm}$$

$$\text{Length of table} = 84 \text{ cm}$$

7. Wire, Length $= 16 \text{ cm}$

$$\text{Breadth} = 8 \text{ cm}$$

$$\text{Rectangle Perimeter} = 2(l + b)$$

$$= 2(16 + 8)$$

$$= 2 \times 24$$

$$= 48 \text{ m}$$

It is formed in the shape of square

$$\text{Perimeter} = 48 \text{ m}$$

$$4 \times S = 48 \quad S = \frac{48}{4} = 12 \text{ m}$$

8. Length $= 220 \text{ m}$

$$\text{Breadth} = 180 \text{ m}$$

$$\text{Perimeter} = 2(l + b)$$

$$= 2(220 + 180)$$

$$= 2 \times 400$$

$$= 800 \text{ m}$$

$$\text{Barbed wire} = 800 \times 4$$

$$= 3200 \text{ m}$$

Exercise 14.2

1. (a) Perimeter $= 5 + 6 + 7 \text{ cm}$
 $= 18 \text{ cm}$
 (b) Perimeter $= 8 + 10 + 8 + 8 + 10$
 $+ 8 \text{ cm} = 52 \text{ cm}$
 (c) Perimeter $= 5 + 5 + 4 + 6 + 4 +$
 $10 + 4 + 6 \text{ cm} = 48 \text{ cm}$
 (d) Perimeter $= 5 + 5 + 4 + 3 + 4 +$
 $6 \text{ cm} = 27 \text{ cm}$
2. Perimeter $= 75 \text{ cm}$
 $S_1 + S_2 + S_3 = 75$
 $20 + 30 + 53 = 75$
 $S_3 = 75 - 50$
 $S_3 = 25 \text{ cm}$

3. (a) Perimeter of Square
 $= 4 \times S = 4 \times 105 = 420 \text{ cm}$

(b) Perimeter of Equilateral
 $D = 3 \times S$
 $= 3 \times 15$
 $= 45 \text{ cm}$

(c) Perimeter of Pentagon
 $= 5 \times S = 5 \times 100$
 $= 500 \text{ m}$

(d) Perimeter of Decagon
 $= 10 \times S$
 $= 10 \times 55$
 $= 550 \text{ m}$

4. Perimeter of Octagon = 24 m

$$8 \times S = 24 \quad S = \frac{24}{8} = 3 \text{ m}$$

5. (i) Perimeter of Equilateral

$$D = 3 \times S$$

$$= 3 \times 3.2$$

$$= 9.6 \text{ cm}$$

(ii) Perimeter of Equilateral

$$D = 3 \times S$$

$$= 3 \times 1.1$$

$$= 3.3$$

6. Perimeter of Isosceles

$$D = 10 + 10 + 7$$

$$= 27 \text{ cm}$$

Length of tape required = 27 cm

Exercise 14.3

1. Do it yourself.

2. Side = 27 m

$$\text{Area of Square} = \text{side} \times \text{side}$$

$$= 27 \times 27$$

$$= 729 \text{ m}^2$$

3. Flowerbeds side = 1.5 m

$$\text{Area} = 1.5 \times 1.5$$

$$= 2.25 \text{ m}^2$$

$$4 \text{ Flowerbeds} = 4 \times 2.25$$

$$= 9.00 \text{ m}^2$$

Land Length = 8 m

Breadth = 6 m

$$\text{Area} = l \times b$$

$$= 8 \times 6$$

$$= 48 \text{ m}^2$$

Remaining Area = Land Area –

Flowerbed Area = 48 – 9

$$= 39 \text{ m}^2$$

4. Floor Length = 6 m

Breadth = 5 m

$$\text{Area of floor} = 6 \times 5$$

$$= 30 \text{ m}^2$$

$$\text{Tile Area} = 0.5 \text{ m} \times 0.5 \text{ m}$$

$$= 0.25 \text{ m}^2$$

$$\text{Roof tiles} = \frac{\text{Floor}}{\text{Tiles}}$$

$$= \frac{3000}{0.25} = 120 \text{ Tiles}$$

5. Perimeter of Square = 60 cm

$$4 \times S = 60$$

$$S = \frac{60}{4} = 15 \text{ cm}$$

$$\text{Area} = S \times S$$

$$= 15 \times 15$$

$$= 225 \text{ cm}^2$$

6. Length = 2 m

Breadth = 1 m 70 cm = 1.70 m

$$\text{Area} = L \times B$$

$$= 2 \times 1.70$$

$$= 3.40 \text{ m}^2$$

7. Length = 4 m 20 cm = 4.20 m

Breadth = 3 m 65 cm = 3.65 m

$$\text{Area of room} = L \times B$$

$$= 4.20 \times 3.64 \text{ m}^2$$

$$= 15.33 \text{ m}^2$$

8. Length = 7.2 m

Breadth = 5.4 m

Area of room = 7.2×5.4

= 38.88 m^2

Tile Area = 18×18

= 325

= 0.0324 m^2

No. of tiles = $\frac{38.88}{0.0324} = 1200$ tiles

9. Length = 70 m

Breadth = 20 m

Area = $L \times B$

= 70×20

= 1400 m^2

Cost of leveling m^2 Play ground

= ₹ 2.5

Cost of leveling 1400 m^2 Play ground

= ₹ 2.5×1400 = ₹ 35000

Perimeter = $2(l \times b)$

= $2(70 + 20)$

= 2×90

= 180 m

Fencing 1 m = ₹ 1.5

Fencing 180 m = ₹ 1.5×180

= ₹ 270

10. Area of floor = $L \times B$

= 6×5

= 30 m^2

Area of carpet = $4\text{m} \times 4\text{m}$

= 16 m^2

Area of remaining floor

= Area floor – Area carpet

= $30 \text{ m}^2 - 16 \text{ m}^2$

= 14 m^2

Chapter-15

Exercise 15.1

1.

Class	Frequency	Number
5		8
6		11
7		4
8		3
4		4
		30

(a) Class 6th

(b) Class 8th

2.

Games	Frequency	Number
C		13
F		13
K		7
V		10
T		7
		50

3.

Marks	Frequency	Number
40		2
41		6
42		7
43		6
44		7
45		3
46		3
47		1
		35

- (a) 47, One student
 (b) 40, Two student
 (c) Three student

Exercise 15.2

1. (a) 12 cycles
 (b) 42 cycles
 (c) $36 \times 20 = ₹ 720$

2.

Class	Scale $\triangle = 5$ girls
VI	$\triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle$
VII	$\triangle \triangle \triangle \triangle \triangle \triangle$
VIII	$\triangle \triangle \triangle \triangle \triangle \triangle$
IX	$\triangle \triangle \triangle$

3.

Monday	$\text{☺} \text{☺} \text{☺} \text{☺}$
Tuesday	$\text{☺} \text{☺} \text{☺} \text{☺}$
Wednesday	$\text{☺} \text{☺} \text{☺} \text{☺} \text{☺}$
Thursday	$\text{☺} \text{☺}$
Friday	$\text{☺} \text{☺} \text{☺} \text{☺}$

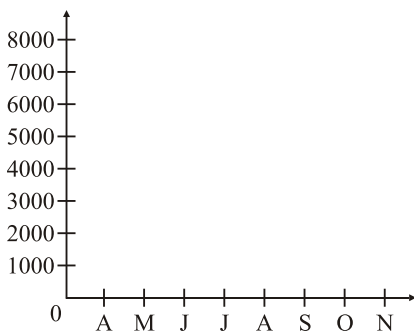
Scale = $\text{☺} = 10$ student

4. Dogs = $4 \times 8 = 32$
 Cats = $5 \times 8 = 40$
 Rats = $3 \times 8 = 24$
 Total = $32 + 40 + 24 = 96$

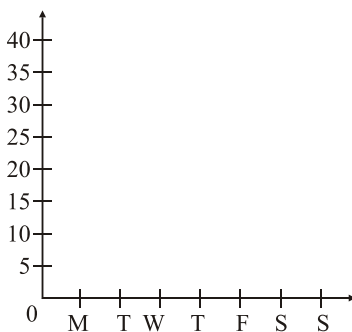
Exercise 15.3

1. (a) SST (b) Maths (c) 50
 (d) Hindi, Science, SST

2.



3.



4. (a) Score of football team scored
 (b) team D
 (c) 43 goals
 (d) Difference $8 - 4 = 4$ Goals