Brilliant
Mathematics

Teacher's Manual

Class V

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Chapter 1 : Revision

Exercise 1A

1. (a) Sixty one thousand two hundred fifty seven

(b) Seventy eight thousand eight hundred eighty

(c) Two lakhs ninety eight thousand seven hundred sixty four

(d) twenty one thousand and three

2. (a) 55,469 (b) 13,407

(c) 9800 (d) 70,006

3.

	Place Value	Face Value
(a)	30	3
(b)	8000	8
(c)	9000	9
(d)	600,000	6

4. 49832, 86304, 473002, 568342, 5544332

5. (a) 76394 (b) 92,502 (c) 563,219 (d) 765, 338

6. (a) 20,821 (b) 14,727 (c) 63887 (d) 341,754

7. $13 + 6 \div 3 + 6 \times 4$

$13 + 2 + 6 \times 4$

$13 + 2 + 24 = 39$

8. (a)

$$\begin{array}{r} 3638 \\ \times\ 49 \\ \hline 32742 \\ 14552\times \\ \hline 178262 \end{array}$$

(b)

$$\begin{array}{r} 5346 \\ \times\ 352 \\ \hline 10692 \\ 26730\times \\ 16038\times\times \\ \hline 1881792 \end{array}$$

9. (a)
$$\begin{array}{r} 45\overline{)7899}(175 \\ -45 \\ \hline 339 \\ -315 \\ \hline 249 \\ 225 \\ \hline 24 \end{array}$$

(b)
$$\begin{array}{r} 35\overline{)23665}(676 \\ -210 \\ \hline 266 \\ -245 \\ \hline 215 \\ 210 \\ \hline 5 \end{array}$$

Q = 175, R = 24 Q = 676, R = 5

10. (a) 15, 30, 45, 60 (b) 27, 54, 81, 108

11. (a) 12 and 18

12 = 1, 2, 3, 4, (6), 12

18 = 1, 2, 3, (6), 9, 18 = HCF = 6

(b) 15, 40, 60

15 = 1, 3, (5), 15

40 = 1, 2, 4, (5), 8, 10, 20

60 = 1, 2, 3, 4, (5), 6, 10, 12, 15, 20 = HCF = 5

12. (a)

2	12, 18
3	6, 9
2	2, 3
3	1, 3
	1, 1

(b)

2	12, 24, 48
2	6, 12, 24
2	3, 6, 12
2	3, 3, 6
3	3, 3, 3
	1, 1, 1

$2 \times 3 \times 2 \times 3 = 36$ $2 \times 2 \times 2 \times 2 \times 3 = 48$

13. (a) $\frac{5}{7} + 1\frac{2}{7} + \frac{1}{7} = \frac{5}{7} + \frac{9}{7} + \frac{1}{7} = \frac{15}{7}$

(b) $3\frac{5}{8} + 1\frac{3}{8} + \frac{7}{8} = \frac{29}{8} + \frac{11}{8} + \frac{7}{8} = \frac{47}{8}$

14. (a) $\frac{4}{12}$ (b) $\frac{9}{4} - \frac{7}{4} = \frac{2}{4}$

15. (a) $\frac{2}{10}$ (b) $\frac{7}{100}$ (c) $\frac{1035}{1000}$

16. (a) $\frac{15}{100}$ 0.15 c.m. (b) $\frac{345}{1000}$ 0.345 g

(c) $\frac{5}{100}$ 0.05 p (d) $\frac{500}{1000}$ 0.5 ml

17. (a) equilateral (b) Isosceles (c) Scalene

18. (a) 8 + 3 + 6 + 4 + 5 + = 26 cm

(b) 5 + 3 + 1 + 4 + 3 + 4 + 1 = 21 cm

19. (a) Vertex = A, B, C Arms = AB, BC

(b) P, Q, R PQ, QR

20. (a) one (b) 60^0 (c) 60^0 (d) 90^0 (e) 90^0

Exercise 1B

1. (a) 99999 (b) 100000 (c) 0 (d) 45679

2. (a) 203009 – 67485 = 135524

3.

Cost of skirts	₹ 1050 . 70
Cost of jeans	₹ 2148 . 35
Cost of top	+ ₹ 874 . 95
	₹ 4074 . 00
Amount given to shopkeeper	₹ 5000
	– ₹ 4074
Amount Kalpana got back	₹ 926

4. Cost of 6 chocolates = ₹ 94.26

Cost of 1 Chocolate = ₹ 94.26 ÷ 6 = ₹ 15.71

5.

Length of wires sold to customer	25m 47cm
	+ 125m 39cm
	150m 86cm
Wire bought by electrician wire sold	400m 00cm
	– 150m 86cm
	249m 14cm

6.

Capacity of oil tanker	100l 000ml
Tank filled with oil	– 45l 375ml
Oil that can filled more	54l 625ml

7. Seminar started at = 7 : 07 am
It lasted for = 2 hrs 47 min
Seminar ends at 9 :54 am

$$\begin{array}{r} 7:07 \\ +\ 2:47 \\ \hline 9:54 \end{array}$$

8. Do yourself

9. Radius = 12 cm, D = 12 × 2 = 24 cm

10. Diameter = 16 cm, R = $\frac{16}{2}$ = 8 cm

Chapter 2 : Roman Numerals

Exercise 2A

1. (a) 10 + 5 + 2 = XVII
(b) 10 + 10 + (10 – 1) = XXIX
(c) 50 + 5 = LV
(d) 50 + 30 + (50 – 1) = LXXXIV
(e) 100 – 10 = XC
(d) (100 – 10) + (10 – 1) = XCIX

2. (a) 10 + 11 = 21 (b) 50 – 10 = 40
(c) 99 (d) 50 + 20 + 11 = 81
(e) 50 + 20 + 6 = 76 (f) 40 + 9 = 49

3. (a) < (b) < (c) < (d) < (e) < (f) =

4. (a) = (16 + 18 = 34) (b) < (16 + 20 < 50)
(c) < (33 + 43 < 83) (d) = (70 – 60 = 10)
(e) < (51 + 14 < 75) (f) < (100 – 92 < 9)

5. (a) XLV, LV, LXV, XCV (b) XIII, XVIII, XXX, LV
(c) XX, XL, LXXIII, LXXX (d) V, X, XL, C

6. (a) CM, CD, XC, XL (b) LIX, LVII, XXXI, XIX
(b) XCV, XCI, LII, XLVII (d) XC, LX, LV, XI

Chapter 3 : Large Numbers

Exercise 3A

1. (a) Five crore forty five lakh thirty two thousand seven hundred twenty nine
(b) Thirty nine crore forty nine lakh eighty thousand sixty four

(c) Forty crore fifty lakh sixty thousand seven hundred ninety

(d) Fifty crore six lakh seven thousand five hundred ninety

2. (a) 7,00,69,336 (b) 61,31,55,342

(c) 66,66,60,066 (d) 45,00,00,901

3. (a) 99,99,99,999 (b) 30,60,30,405

(c) 5,07,03,568 (d) 85,90,87,905

4. (a) 50,00,00,000 + 5,00,00,000 + 70,00,000 + 6,00,000 + 40,000 + 2,000 + 300 + 20 + 1

(b) 7,00,00,000 + 30,00,000 + 5,00,000 + 60,000 + 2,000 + 900 + 40 + 8

(c) 40,00,00,000 + 6,00,00,000 + 80,00,000 + 5,00,000 + 70,000 + 9000 + 300 + 40 + 2

(d) 50,00,00,000 + 9,00,00,000 + 30,00,000 + 4000 + 400 + 9

5. (a) 70000000 (b) 700000 (c) 700000000 (d) 70000

6. (a) Eight hundred fifty six million seven hundred twenty nine thousand four hundred twenty eight

(b) Four billion three hundred fifty six million five hundred forty thousand four hundred nine

(c) Seven billion four hundred fifty three million nine hundred ninety six thousand two hundred forty four

(d) Nine hundred thirty seven million two hundred sixty eight thousand five hundred sixty four

7. (a) 183,200,085 (b) 34,001,200,004

(c) 41,365,247 (d) 4,003,006,007

8. (a) 1000 (b) 1000 (c) 100 (d) 1000

(e) 72409809000 (f) 60805390399

Exercise 3B

1. (a) > (b) > (c) < (d) > (e) < (f) <

2. (a) 88888, 88889, 777789, 6666789

(b) 555555, 666666, 14867520, 90507200

(c) 645321, 798543, 1839876, 7893218

(d) 3896897, 20007326, 20607206, 24865710

3. (a) 8400084, 8100008, 810008, 83000

(b) 50207306, 41856710, 30007216, 2768976

(c) 33224457, 11188776, 2000000, 1088888

(d) 98765432, 90807060, 87654321, 76543210

4. (a) 86430, 30468 (b) 8765430, 3045678

(c) 88764320, 20346788 (d) 97543210, 10234579

5. Greatest number : 44443210; Smallest number :10000234

Chapter 4 : Operations Involving Large Numbers

Exercise 4A

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

(b)
$$\begin{array}{r} {\scriptstyle ①\,①\,①\,①\,①\,①\,①} \\ 6\,7\,4\,3\,5\,4\,7 \\ +\,2\,5\,9\,5\,6\,7\,4 \\ \hline 9\,3\,3\,9\,2\,2\,1 \end{array}$$

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

(d)
$$\begin{array}{r} {\scriptstyle ①\quad ②\,①\,①\,①} \\ 9\,0\,8\,0\,6\,0\,5\,4 \\ 1\,4\,3\,4\,5\,4\,8 \\ +\,7\,2\,9\,8\,4\,3 \\ \hline 9\,2\,9\,7\,0\,4\,4\,5 \end{array}$$

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

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

(c)
$$\begin{array}{r} {\scriptstyle ①\,①\,①\,②\,②\,①} \\ 7\,6\,5\,7\,9\,8\,4 \\ 8\,7\,4\,3\,8\,1 \\ +\,5\,7\,9\,9 \\ \hline 8\,5\,3\,8\,1\,6\,4 \end{array}$$

(d)
$$\begin{array}{r} {\scriptstyle ②\,②\,②\,②\,①\,①} \\ 8\,4\,5\,9\,6\,7\,8 \\ 9\,9\,8\,7\,4\,3 \\ +\,9\,8\,7\,6\,5\,3 \\ \hline 1\,0\,4\,4\,6\,0\,7\,4 \end{array}$$

3. (a)
$$\begin{array}{r} 8\,8\,5\,6\,7\,4\,4\,3 \\ 2\,2\,2\,3\,4\,3 \\ +\,5\,6\,7\,5\,7 \\ \hline 8\,8\,8\,4\,6\,5\,4\,3 \end{array}$$

(b)
$$\begin{array}{r} 9\,8\,8\,9\,9\,8 \\ 1\,1\,1\,4\,4\,4 \\ +\,5\,5\,5\,5\,5\,5 \\ \hline 1\,6\,5\,5\,9\,9\,7 \end{array}$$

(c)
$$\begin{array}{r} 3\,3\,4\,4\,1\,1\,2\,2 \\ 5\,5\,6\,6\,7\,7\,3\,3 \\ +\,9\,9\,7\,7\,4\,4\,8\,8 \\ \hline 1\,8\,8\,8\,8\,3\,3\,4\,3 \end{array}$$

4. (a)

```
   1   1
 5 7 4 [5] 4
+8 [8] 7 5 9
 1 4 6 2 1 [3]
```

(d)

```
 1 1 1 1
 5 2 [3] 8 7
 2 [3] 4 3 2
+3 5 3 [3] 8
 1 [1] 1 1 5 [7]
```

5. (a)

```
  9 6 0 5 8 7
– 3 8 0 5 9 4
  5 7 9 9 9 3
```

(b)

```
  9 7 8 4 3 5 1
–   4 8 9 6 7 4
  9 2 9 4 6 7 7
```

(c)

```
  9 6 9 6 9 6
– 4 8 4 8 4 8
  4 8 4 8 4 8
```

(d)

```
 1 0 0 5 0 6 0 5
–   1 2 8 9 5 0
   9 9 2 1 6 5 5
```

6. (a) 94957 – 823456 + 904548

(94957 + 904548) – 823456

999505 – 823456 = 176049

(b) (7676767 + 242424) – 353535

7919191 – 353535 = 7565656

(c) (8989674 + 27938044) – 7438675

36927718 – 7438675 = 29489043

(d) (6788765 + 2102102) – 4787888

8890867 – 4787888 = 4102979

Exercise 4B

1.

No. of men	5 6 7 4 3 2 5
No. of women	2 2 5 6 7 4 2
No. of children	+ 2 3 5 6 8 9 9
Total population	1 0 2 8 7 9 6 6

2.

No. of toys produced	7 6 4 5 3 4 4
No. of toys sold	– 5 8 6 7 4 2 8
No. of toys left unsold	1 7 7 7 9 1 6

3.

No. of persons visited zoo 1st year	3 7 4 5 9 9 8
No. of persons visited zoo IInd year	+ 5 6 7 4 3 4 4
Total no. of persons visited zoo	9 4 2 0 3 4 2

4.
$$\begin{array}{r} 9\,0\,5\,6\,3\,4\,4 \\ -\,8\,5\,3\,6\,7\,4\,2 \\ \hline 5\,1\,9\,6\,0\,2 \end{array}$$

5.
$$\begin{array}{r} 1\,4\,2\,3\,6\,7\,4\,2\,1 \\ -\,3\,5\,4\,4\,7\,8\,0 \\ \hline 1\,3\,8\,8\,2\,2\,6\,4\,1 \end{array}$$

6.
$$\begin{array}{r} 6\,8\,3\,3\,7\,8\,7\,9 \\ -\,4\,3\,7\,6\,8\,3\,1\,4 \\ \hline 2\,4\,5\,6\,9\,5\,6\,5 \end{array}$$

7.
$$\begin{array}{r} 7\,9\,3\,0\,0\,3\,1\,4 \\ -\,3\,4\,4\,9\,8\,4\,2\,7 \\ \hline 4\,4\,8\,0\,1\,8\,8\,7 \end{array}$$

8. Total no. of votes

$$\begin{array}{r} 2\,7\,4\,2\,3\,8\,5 \\ 2\,8\,1\,4\,1\,2\,9 \\ +\,3\,5\,3\,6\,7\,4\,8 \\ \hline 9\,0\,9\,3\,2\,6\,2 \end{array}$$

9. No. of females

No. of male exceed by

No. of males

$$\begin{array}{r} 6\,2\,5\,7\,4\,3 \\ +\,3\,2\,5\,6\,7\,4\,8 \\ \hline 3\,8\,8\,2\,4\,9\,1 \end{array}$$

10. Amount withdrawn

$$\begin{array}{r} ₹\,2\,5\,2\,6\,7\,5\,5 \\ +₹\,1\,5\,5\,6\,3\,4\,5 \\ \hline ₹\,4\,0\,8\,3\,1\,0\,0 \end{array}$$

Money deposited = ₹ 34456980 – 1556345

Bed amount = ₹ 31930225 /-

Exercise 4C

1. (a)
$$\begin{array}{r} 6\,2\,3\,6 \\ \times\,3\,4 \\ \hline 2\,4\,9\,4\,4 \\ 1\,8\,7\,0\,8\times \\ \hline 2\,1\,2\,0\,2\,4 \end{array}$$

(b)
$$\begin{array}{r} 7\,2\,9\,8 \\ \times\,8\,5 \\ \hline 3\,6\,4\,9\,0 \\ 5\,8\,3\,8\,4\times \\ \hline 6\,2\,0\,3\,3\,0 \end{array}$$

(c)
$$\begin{array}{r} 9\,3\,4\,2 \\ \times\,4\,2\,5 \\ \hline 4\,6\,7\,1\,0 \\ 1\,8\,6\,8\,4\times \\ 3\,7\,3\,6\,8\times\times \\ \hline 3\,9\,7\,0\,3\,5\,0 \end{array}$$

(d)
$$\begin{array}{r} 4\,2\,8\,7\,9 \\ \times\,9\,8\,6 \\ \hline 2\,5\,7\,2\,7\,4 \\ 3\,4\,3\,0\,3\,2\times \\ 3\,8\,5\,9\,1\,1\times\times \\ \hline 4\,2\,2\,7\,8\,6\,9\,4 \end{array}$$

(e)
$$\begin{array}{r} 74564 \\ \times\ 1235 \\ \hline 372820 \\ 223692\times \\ 149128\times\times \\ 74564\times\times\times \\ \hline 92086540 \end{array}$$

(f)
$$\begin{array}{r} 78654 \\ \times\ 9268 \\ \hline 629232 \\ 471924\times \\ 157308\times\times \\ 707886\times\times\times \\ \hline 728965272 \end{array}$$

2. (a)
$$\begin{array}{r} 39674 \\ \times\ 87 \\ \hline 277718 \\ 317392\times \\ \hline 3451638 \end{array}$$

(b)
$$\begin{array}{r} 25685 \\ \times\ 725 \\ \hline 128425 \\ 51370\times \\ 179795\times\times \\ \hline 18621625 \end{array}$$

(c)
$$\begin{array}{r} 35968 \\ \times\ 1087 \\ \hline 251776 \\ 287744\times \\ 00000\times\times \\ 35968\times\times\times \\ \hline 39097216 \end{array}$$

(d)
$$\begin{array}{r} 60085 \\ \times\ 3686 \\ \hline 360510 \\ 480680\times \\ 360510\times\times \\ 180255\times\times\times \\ \hline 221473310 \end{array}$$

(e)
$$\begin{array}{r} 58790 \\ \times\ 4056 \\ \hline 352740 \\ 293950\times \\ 00000\times\times \\ 235160\times\times\times \\ \hline 238452240 \end{array}$$

(f)
$$\begin{array}{r} 70850 \\ \times\ 6034 \\ \hline 283400 \\ 212550\times \\ 00000\times\times \\ 425100\times\times\times \\ \hline 427508900 \end{array}$$

3. (a)
$$\begin{array}{r} 47\overline{)795604}(16927 \\ -47 \\ \hline 325 \\ -282 \\ \hline 436 \\ -423 \\ \hline 130 \\ -094 \\ \hline 364 \\ -329 \\ \hline 35 \end{array}$$

Q = 16927, R = 35

(b)
$$\begin{array}{r} 54\overline{)547486}(10138 \\ -54 \\ \hline 74 \\ -54 \\ \hline 208 \\ -162 \\ \hline 446 \\ 432 \\ \hline 34 \end{array}$$

Q = 10138, R = 34

(c)
$$\begin{array}{r} 74\overline{)729876}(9863 \\ -666 \\ \hline 638 \\ -592 \\ \hline 467 \\ -444 \\ \hline 236 \\ 222 \\ \hline 34 \end{array}$$

Q = 9863, R = 34

(d)
$$\begin{array}{r} 355\overline{)5674208}(15983 \\ -355 \\ \hline 2124 \\ -1775 \\ \hline 3492 \\ -3195 \\ \hline 2970 \\ -2840 \\ \hline 1308 \\ -1065 \\ \hline 243 \end{array}$$

Q = 15983, R = 243

Exercise 4D

4. (a) $(4128 \div 258) + (8384 \div 524) \times 18$

$16 + (16 \times 18) = 16 + 288 = 304$

(b) $(6250 \div 250) - (4110 \div 822) - 10$

$(25 - 5) - 10 = 20 - 10 = 10$

(c) $(32 + 24) - (4 \times 12)$

$56 - 48 = 8$

(d) $(40 \times 16) \div (20 \text{ of } 8)$

$640 \div 20 \times 8 = 640 \div 160 = 4$

(e) $48 + (30 \div 6) \times (8 - 4)$

$48 + 5 \times 4 = 48 + 20 = 68$

(f) $5 \times (19 - (15 - 8))$

$5 \times (19 - 7) = 5 \times 12 = 60$

(g) $40 + (10 \times (144 - 84))$

$40 + (10 \times 60) = 40 + 600 = 640$

(h) $(60 \div 20) + (12 \times 12) \div 16$

$3 + 144 \div 16 = 3 + 9 = 12$

(i) $(7 + (5 \times 3)) - 12 + 6 \times 3$

$7 + (15) - 12 + 18 = 22 - 12 + 18 = 40 - 12 = 28$

(j) $23 - [24 - 3\ \{7 - (8 - 5)\}]$

$23 - [24 - 3\ \{7 - 3\}]$

$23 - [24 - 3 \times 4]$

$23 - (24 - 12)$

$23 - 12 = 11$

Exercise 4E

1. No. of pencil in one box = 6754

Pencils in 1045 boxes = $6754 \times 1045 = 7057930$ pencils

2. Total sum ₹ 3916250

Shared b/w 325 persons

Amt each person get = $3916250 \div 325$ = ₹ 12050

3. Cost of one bicycle ₹ 78654

Cost of 756 bicycles = 78654×756 = ₹ 5,94,62,424

4. Total weight = 1711875 kg

No. of trucks = 249

Weight carried by each trucks = $1711875 \div 249 = 6875$ kg

5. No. of bags in godown = 9745

Each bag weights = 375 kg

Total weight of bags = $9745 \times 375 = 3654375$ kg

6. Qty of water tank can hold 1322209 l

No. of tanks = 1897

Capacity of each tank = 1322209 ÷ 1897 = 697 l

7. Cost of one calculator = ₹ 845

Amt collected by selling = ₹ 742755

No. of calculators sold = 742755 ÷ 845 = 879 calculators

8. 1785483 ÷ 987 = 1809

Chapter 5 : HCF and LCM

Exercise 5A

1. (a) 24 = 1, 2, 3, 4, 6, 8, 12, 24

60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20

Common factors = 1, 2, 3, 4, 5, 6, 12

(b) 77 = 1, 7, 11, 77 110 = 1, 2, 5, 11

Common factors = 1, 11

(c) 75 = 1, 3, 5, 15, 25, 75

100 = 1, 2, 4, 5, 10, 20, 50, 100

Common factor = 1, 5, 25

(d) 120 = 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

160 = 1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160

Common factors = 1, 2, 4, 5, 8, 10, 20, 40

(e) 150 = 1, 2, 3, 5, 6, 10, 15, 25, 30, 50, 75, 150

250 = 1, 2, 5, 10, 25, 50, 125, 250

Common factors = 1, 2, 5, 10, 25, 50

(f) 300 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 25, 30, 50, 60, 75, 100, 150, 300

400 = 1, 2, 4, 5, 8, 10, 16, 20, 25, 40, 50, 80, 100, 200, 400

Common factors = 1, 2, 4, 5, 10, 20, 25, 50, 100

2. (a)

2	70
5	35
7	7
	1

2	98
7	49
7	7
	1

$= 2 \times 5 \times 7$
$= 2 \times 7 \times 7$
HCF $= 2 \times 7 = 14$

(b)

2	176
2	88
2	44
2	22
11	11
	1

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

$= 2 \times 2 \times 2 \times 2 \times 11$
$= 2 \times 2 \times 2 \times 2 \times 2 \times 3$
HCF $= 2 \times 2 \times 2 \times 2$
$= 16$

(c)

2	108
2	54
3	27
3	9
3	3
	1

3	315
3	105
5	35
7	7
	1

$= 2 \times 2 \times 3 \times 3 \times 3$
$= 3 \times 3 \times 5 \times 7$
HCF $= 3 \times 3 = 9$

(d)

3	315
3	105
5	35
7	7
	1

2	120
2	60
2	30
3	15
5	5
	1

$= 3 \times 3 \times 5 \times 7$
$= 2 \times 2 \times 2 \times 3 \times 5$
HCF $= 3 \times 5 = 15$

(e)

3	105
5	35
7	7
	1

2	280
2	140
2	70
5	35
7	7
	1

$= 3 \times 5 \times 7$
$= 2 \times 2 \times 2 \times 5 \times 7$
HCF $= 5 \times 7 = 35$

(f)

5	175
5	35
7	7
	1

33	225
3	75
5	25
5	5
	1

$= 5 \times 5 \times 7$

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

HCF $= 5 \times 5 = 25$

3. (a)

3	105
5	35
7	7
	1

5	85
17	17
	1

2	140
2	70
5	35
7	7
	1

$= 3 \times ⑤ \times 7$

$= ⑤ \times 17$

$= 2 \times 2 \times ⑤ \times 7$

HCF $= 5$

(b)

2	116
2	58
29	29
	1

5	145
29	29
	1

2	290
5	145
29	29
	1

$= 116 = 2 \times 2 \times ㉙$

$= 145 = 5 \times ㉙$

$= 290 = 2 \times 5 \times ㉙$

HCF $= 29$

(c)

5	45
3	9
3	3
	1

5	495
3	99
3	33
11	11
	1

3	990
3	330
11	110
2	10
5	5
	1

$45 = ⑤ \times ③ \times ③$

$495 = ⑤ \times ③ \times ③$

$990 = ③ \times ③ \times 11 \times 2 \times ⑤$

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

(d)

2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

13	221
17	17
	1

2	470
5	235
47	47
	1

$128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times (1)$

$221 = 13 \times 17 \times (1)$

$470 = 2 \times 5 \times 47 \times (1) = \text{HCF} = 1$

(e)

3	306
3	153
3	51
17	17
	1

2	408
2	204
2	102
3	51
17	17
	1

2	224
2	112
2	56
2	28
2	14
7	7
	1

$306 = (2) \times 3 \times 3 \times 17$

$408 = (2) \times 2 \times 2 \times 3 \times 17$

$224 = (2) \times 2 \times 2 \times 2 \times 2 \times 7 = \text{HCF} = 2$

(f)

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	576
2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

2	804
2	402
3	201
67	67
	1

$144 = 2 \times 2 \times 2 \times 2 \times 3 \times (3)$

$576 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times (3) \times 3$

$804 = 2 \times 2 \times (3) \times 67 = \text{HCF} = 3$

4. (a)

345) 726 (2
−690
36) 531 (14
−36
171
−144
27) 36 (1
−27
9) 27 (3
−27
×

HCF = 3

(b)

(b)

404) 568 (1
−404
164) 556 (3
−492
64) 164 (2
−128
36) 64 (1
−36
28) 36 (1
−28
8) 28 (3
−24
4) 8 (2
−8
1

HCF = 4

(c)

288) 360 (1
−288
72) 360 (5
−360
×

72) 384 (5
−360
24) 72 (3
−72
×

HCF = 24

(d) $1085\overline{)1435}(1$
-1085
$350\overline{)2135}(6$
-2100
$35\overline{)350}(10$
-350
0

HCF = 35

(e) $216\overline{)540}(2$
-432
$108\overline{)1260}(11$
-108
180
-108
$72\overline{)108}(1$
-72
$36\overline{)72}(2$
-72
$\times$

HCF = 36

(f) $460\overline{)920}(2$
-920
$\times$

$460\overline{)1380}(3$
-1380
$\times$

HCF = 460

Exercise 5B

1. (a)

2	54
3	27
3	9
3	3
	1

2	114
3	57
19	19
	1

$2 \times 3 \times 3 \times 3$
$2 \times 3 \times 19$
LCM = $2 \times 3 \times 3 \times 3 \times 19$
= 1026

(b)

2	36
2	18
3	9
3	3
	1

3	21
7	7
	1

$2 \times 2 \times \textcircled{3} \times 3$

$\textcircled{3} \times 7$

$2 \times 2 \times 3 \times 3 \times 7 = 252$

(c)

3	15
5	5
	1

3	45
3	15
5	5
	1

3	225
3	75
5	25
5	5
	1

$= 3 \times 5$

$= 3 \times 3 \times 5$

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

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

(d)

2	12
2	6
3	3
	1

2	16
2	8
2	4
2	2
	1

2	24
2	12
2	6
3	3
	1

2	32
2	16
2	8
2	4
2	2
	1

LCM $= 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 96$

(e) Do yourself

(f)

2	66
3	33
11	11
	1

2	88
2	44
2	22
11	11
	1

2	110
5	55
11	11
	1

7	77
11	11
	1

$2 \times 3 \times 11$

$2 \times 2 \times 2 \times 11$

$2 \times 5 \times 11$

$7 \times 11 =$ LCM $= 2 \times 2 \times 2 \times 3 \times 7 \times 11 = 9240$

2. (a)

2	64, 80, 36
2	32, 40, 18
2	16, 20, 9
2	8, 10, 9
2	4, 5, 9
2	2, 5, 9
3	1, 5, 9
3	1, 5, 3
5	1, 5, 1
	1 1 1

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 2880$

(b)

2	16, 24, 32
2	8, 12, 16
2	4, 6, 8
2	2, 3, 4
2	1, 3, 2
3	1, 3, 1
	1 1 1

$2 \times 2 \times 2 \times 2 \times 2 \times 3 = \text{LCM } 96$

(c)

2	112, 252, 99
2	56, 126, 99
2	28, 63, 99
2	14, 63, 99
3	7, 63, 99
3	7, 21, 33
7	7, 7, 11
11	1, 1, 11
	1 1 1

$2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 11 = \text{LCM } 3696$

(d)

2	32, 56, 84,
2	16, 28, 42,
2	8, 14, 21,
2	4, 14, 21,
2	2, 7, 21,
7	1, 7, 21,
3	1, 1, 3,
	1 1 3

$2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 3 = \text{LCM } 672$

(e)

2	78, 39, 156
2	39, 39, 78
3	39, 39, 39
13	13, 13, 13
	1 1 1

$2 \times 2 \times 3 \times 13 = \text{LCM} = 156$

(f)

2	110, 132,154,
11	55, 66, 77,
5	5, 6, 7,
2	1, 6, 7,
3	1, 3, 7,
7	1, 1, 7,
	1 1 1

$2 \times 2 \times 11 \times 5 \times 3 \times 7 = \text{LCM } 4620$

3. (a) 32 and 40

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

40 = 1, 2, 4, 5, 8, 10, 20, 40

HCF = 8

LCM = × HCF = Product of two numbers

LCM × 8 = 32 × 40

$$\text{LCM} = \frac{32 \times 40}{8} = 32 \times 5 = 160$$

(b) 55 and 44

55 = 1, 5, 11, 55

44 = 1, 2, 4, 11, 22, 44

HCF = 11

LCM × 11 = 55 × 44

$$\text{LCM} = \frac{55 \times 44}{11} = 55 \times 4 = 220$$

(c) 210 and 180

210 = 1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, 210

180 = 1, 2, 3, 4, 5, 6, 9, 10, 12, 15, 18, 20, 30, 36, 45, 60, 90

HCF = 30

LCM × HCF = 210 × 180

LCM × 30 = 210 × 180

$$\text{LCM} = \frac{210 \times 180}{30} = 7 \times 180 = 1260$$

(d) 204 and 255

HCF = 51

LCM × HCF = 204 × 255

LCM × 51 = 204 × 255

$$\text{LCM} = \frac{204 \times 255}{51} = \frac{52020}{51} = 1020$$

(e) 128 and 192

HCF = 64

LCM × HCF = 128 × 192

$$\text{LCM} = \frac{128 \times 192}{64} = \frac{24576}{64} = 384$$

(f) 126 and 210

HCF = 42

LCM × 42 = 126 × 210

$$\text{LCM} = \frac{126 \times 210}{42} = 630$$

4. $\left.\begin{matrix} 2 \times 3 \times 5 \\ 3 \times 5 \times 7 \end{matrix}\right\rbrace = 2 \times 3 \times 5 \times 7 = 210$

5. 96 × 8 = 32 × Number

$$\text{Number} = \frac{96 \times 8}{32} = 24$$

6. 336 × 28 = 112 × Number

$$\text{No.} = \frac{336 \times 28}{112} = 84$$

7. (a) GCD (b) smallest (c) highest (d) equal
(e) co-prime

Exercise 5C

1. HCF × LCM = Produce of No. s

3 × LCM = 216

$$\text{LCM} = \frac{216}{3} = 72$$

2.

2	100, 140, 180,
2	50, 70, 90,
5	25, 35, 45,
5	5, 7, 9,
7	1, 7, 9,
3	1, 1, 9,
3	1, 1, 3,
	1 1 1

$2 \times 2 \times 5 \times 5 \times 7 \times 3 \times 3 = 6300$

3.

2	8, 12, 15
2	4, 6, 15
2	2, 3, 15
3	1, 3, 15
5	1, 1, 5
	1 1 1

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

$120 + 3 = 123$ is the no.

4.

2	200, 320
2	100, 160
2	50, 80
2	25, 40
2	25, 20
2	25, 10
5	25, 5
5	5, 1
	1 1

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

HCF = 40

5. $96 \times 8 = 32 \times$ No.

No. $\frac{96 \times 8}{32} = 3 \times 8$

$= 24$

6.

$$\begin{array}{r} 18\overline{)27}\,(1 \\ -18 \\ \hline 9\,\overline{)162}\,(18 \\ -9 \\ \hline 72 \\ 72 \\ \hline \times \end{array}$$

HCF = Third rod will 162/9 be divided in 18 portions.

Chapter 6 : Fractions

Exercise 6A

1. (a) Do yourself (b) Do yourself (c) Do yourself

2. $\frac{1}{7}, \frac{1}{9}, \frac{1}{12}, \frac{1}{13}$

3. (b) $\frac{1}{9}, \frac{8}{9}$ (c) $\frac{3}{17}, \frac{4}{17}$

3. (b) $\frac{1}{9}, \frac{3}{7}$ (d) $\frac{5}{13}, \frac{7}{15}$ **3.** (a) $\frac{3}{8}$ (c) $\frac{5}{13}$ (d) $\frac{8}{19}$

6. (a) $3\overline{)8\,(2}$, -6, 2 $= 2\frac{2}{3}$

(b) $4\overline{)61\,(15}$, -41, 21, -20, 1 $= 15\frac{1}{4}$

(c) $5\overline{)28\,(5}$, -25, 03 $= 5\frac{3}{5}$

(d) $7\overline{)16\,(2}$, -14, 02 $= 2\frac{2}{7}$

7. (a) $\frac{6 \times 8 + 5}{6} = \frac{48 + 5}{6} = \frac{53}{6}$

(b) $\frac{8 \times 7 + 4}{8} = \frac{56 + 4}{8} = \frac{60}{8}$

(c) $\frac{5 \times 3 + 4}{5} = \frac{15 + 4}{5} = \frac{19}{5}$

(d) $\frac{10 \times 13 + 5}{10} = \frac{130 + 5}{10} = \frac{135}{10}$

8. (a) $\frac{3 \times 2}{8 \times 2} = \frac{6}{16} = \frac{3 \times 3}{8 \times 3} = \frac{9}{32} = \frac{3 \times 4}{8 \times 4} = \frac{12}{32}$

(b) $\frac{7 \times 2}{9 \times 2} = \frac{14}{18} = \frac{7 \times 3}{9 \times 3} = \frac{21}{27} = \frac{7 \times 4}{9 \times 4} = \frac{28}{36}$

(c) $\frac{4 \times 2}{18 \times 2} = \frac{8}{36} = \frac{4 \times 3}{18 \times 3} = \frac{12}{54} = \frac{4 \times 4}{18 \times 4} = \frac{16}{72}$

(d) $\frac{9 \times 2}{25 \times 2} = \frac{18}{50} = \frac{9 \times 3}{25 \times 3} = \frac{27}{75} = \frac{9 \times 4}{25 \times 4} = \frac{36}{100}$

9. (a) $\frac{4 \times 5}{5 \times 5} = \frac{20}{25}$ (b) $\frac{8 \times 8}{9 \times 8} = \frac{64}{72}$

(c) $\frac{7 \times 8}{13 \times 8} = \frac{56}{104}$ (d) $\frac{11 \times 2}{35 \times 2} = \frac{22}{70}$

10. $\frac{5 \times 7}{11 \times 7} = \frac{35}{77}$ **11.** $\frac{54 \div 6}{48 \div 6} = \frac{9}{8}$

12. (a) $\frac{27}{54} = \frac{9}{18} = \frac{1}{2}$ (Divided by 3)

(b) $\frac{24}{36} = \frac{2}{3}$ (Divided by 12)

(c) $\frac{45}{54} = \frac{5}{6}$ (Divided by 9)

(d) $\frac{35}{50} = \frac{7}{10}$ (÷ by 5) (e) $\frac{64}{80} = \frac{8}{10} = \frac{4}{5}$

Exercise 6B

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

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

(b) $\frac{6}{15}, \frac{2}{13}$ LCM = 195

$\frac{6 \times 13}{195}, \frac{2 \times 15}{195} = \frac{78}{195} > \frac{30}{195}$

(c) $\frac{15}{8}, \frac{13}{6}$ LCM = 24

$\frac{15 \times 6}{24}, \frac{13 \times 8}{24} = \frac{90}{24} < \frac{104}{24}$

(d) $\frac{7}{10}, \frac{6}{9}$ LCM = 90

$\frac{7 \times 9}{90}, \frac{6 \times 10}{90} = \frac{63}{90} > \frac{60}{90}$

(e) $\frac{2}{15}, \frac{7}{25}$ LCM = 75

$\frac{2 \times 25}{75}, \frac{7 \times 15}{75} = \frac{50}{75} < \frac{105}{75}$

(f) $\frac{3}{9}, \frac{1}{8}$ LCM = 72

$\frac{3 \times 8}{72}, \frac{1 \times 9}{72} = \frac{24}{72} > \frac{9}{72}$

2. (a) $3\frac{1}{4}, 3\frac{4}{9} = \frac{13}{4} >, \frac{31}{9}$ LCM = 36

(b) $3, 3\frac{1}{9} = 3, \frac{28}{9}$ LCM = 9 $\frac{3 \times 9}{9} = \frac{27}{9} < \frac{28}{9}$

(c) $2\frac{1}{5}, 2\frac{2}{7}$ LCM = 35 $\frac{11}{5}, \frac{16}{7} = \frac{77}{35} < \frac{80}{35}$

(d) $8\frac{1}{5}, 8\frac{1}{4} = \frac{41}{5}, \frac{33}{4}$ LCM = 20

$\frac{41 \times 4}{20}, \frac{33 \times 5}{20} = \frac{164}{20} < \frac{165}{20}$

(e) $4\frac{1}{6}, 4\frac{1}{4} = \frac{25}{6} < \frac{17}{4}$ LCM = 12

(f) $7\frac{2}{7}, 7\frac{1}{16} = \frac{51}{7} > \frac{113}{16}$ LCM = 112

3. (a) $\frac{3}{25}, \frac{5}{25}, \frac{12}{25}, \frac{17}{25}, \frac{24}{25}$

(b) $\frac{1}{13}, \frac{4}{13}, \frac{5}{13}, \frac{9}{13}, \frac{10}{13}$

(c) $\frac{2}{6}, \frac{3}{7}, \frac{7}{10}, \frac{8}{11}, \frac{4}{5}$ LCM = 2310

(d) $\frac{1}{24}, \frac{1}{14}, \frac{1}{9}, \frac{3}{15}, \frac{5}{7}$ LCM = 2520

4. (a) $\frac{15}{11}, \frac{15}{9}, \frac{15}{7}, \frac{15}{5}, \frac{15}{3}$

(b) $\frac{23}{27}, \frac{23}{25}, \frac{23}{19}, \frac{23}{18}, \frac{23}{11}$

(c) $\frac{3}{4}, \frac{8}{12}, \frac{7}{15}, \frac{2}{5}, \frac{3}{10}$ LCM = 60

(d) $\frac{9}{17}, \frac{11}{25}, \frac{13}{34}, \frac{2}{7}, \frac{7}{28}$ LCM = 11900

Exercise 6C

1. (a) $\frac{3+4}{8} = \frac{7}{8}$ (b) $\frac{8+5}{9} = \frac{13}{9}$

(c) $\frac{16+15+18}{21} = \frac{49}{21}$

2. (a) $\frac{2}{9} + \frac{5}{8} = \frac{16+45}{72} = \frac{61}{72}$

(b) $\frac{6}{17} + \frac{4}{21} = \frac{126+68}{357} = \frac{194}{357}$

(c) $\frac{4}{19} + \frac{3}{11} + 2 = \frac{44+57+418}{209} = \frac{519}{209}$

(d) $\frac{2}{3} + \frac{3}{5} + \frac{4}{7} = \frac{70+63+60}{105} = \frac{193}{105}$

(e) $2\frac{3}{5} + 1\frac{3}{7} + 2\frac{1}{5} = \frac{13}{5} + \frac{10}{7} + \frac{11}{5} = \frac{13+10+11}{35} = \frac{34}{35}$

(f) $4\frac{1}{7} + 3\frac{2}{7} + 1\frac{5}{7} = \frac{29}{7} + \frac{23}{7} + \frac{12}{7} = \frac{64}{7}$

3. (a) $\frac{8}{9} - \frac{4}{9} = \frac{8-4}{9} = \frac{4}{9}$ (b) $\frac{19}{38} - \frac{9}{38} = \frac{19-9}{38} = \frac{10}{38}$

(c) $\frac{21}{42} - \frac{13}{42} = \frac{21-13}{42} = \frac{8}{42}$

4. (a) $\frac{4}{5} - \frac{3}{14} = \frac{4 \times 14 - 3 \times 5}{70} = \frac{56 - 15}{70} = \frac{41}{70}$

(b) $\frac{6}{7} - \frac{8}{19} = \frac{6 \times 19 - 8 \times 7}{133} = \frac{114 - 56}{133} = \frac{58}{133}$

(c) $1 - \frac{3}{22} = \frac{22 - 3}{22} = \frac{19}{22}$

(d) $5\frac{2}{6} - 1\frac{3}{12} = \frac{32}{6} - \frac{15}{12} = \frac{32 - 15}{12} = \frac{17}{12}$

(e) $8 - 4\frac{1}{7} = 8 - \frac{29}{7} = \frac{56 - 29}{7} = \frac{27}{7}$

(f) $1\frac{11}{22} - \frac{5}{17} = \frac{33 - 5}{374} = \frac{28}{374}$

5. (a) $\frac{(9 + 2) - 3}{8} = \frac{11 - 3}{8} = \frac{8}{8} = 1$

(b) $\frac{1}{5} - \frac{2}{9} + \frac{7}{12}$ LCM = 180

(c) $\frac{36 - 40 + 15}{180} = \frac{36 + 105 - 5}{180} = \frac{101}{180}$

(d) $4\frac{1}{4} - 2\frac{3}{8} + 8\frac{1}{3}$ = LCM = 24

$\frac{17}{4} - \frac{19}{8} + \frac{25}{3} = \frac{102 - 57 + 200}{24} = \frac{302 - 57}{24} = \frac{245}{24}$

(e) $6\frac{5}{9} - 2\frac{1}{6} + 4\frac{1}{3}$ = LCM 18

$\frac{59}{9} - \frac{13}{6} + \frac{13}{3} = \frac{118 - 39 + 78}{18}$

$\frac{118 + 78 - 39}{18} = \frac{196 - 39}{18} = \frac{157}{18}$

(f) $10 - 2\frac{1}{4} - 3\frac{2}{10} = 10 - \frac{9}{4} - \frac{32}{10}$

$$\frac{200 - 45 - 64}{20} = \frac{91}{20}$$

6. Do yourself

7. Do yourself

Exercise 6D

1. Gas in cylinder = 47l

Gas used $= 20\frac{3}{4}$ l

Gas left in cylinder $= 47 - 20\frac{3}{4}$

$= 47 - \frac{83}{4} = \frac{188 - 83}{4} = \frac{105}{4}$ *l*

2. $3\frac{8}{11} - 2\frac{4}{5} = \frac{41}{11} - \frac{14}{5} = \frac{205 - 154}{55} = \frac{51}{55}$

3. Time taken to paint table $= 2\frac{3}{5}$ hrs

Time taken to paint chair $= 2\frac{1}{5}$ hrs

$= 2\frac{3}{5} + 2\frac{1}{5} = \frac{13}{5} + \frac{11}{5} = \frac{24}{5}$ hrs

4. $3\frac{3}{6}$ kg $+ 2\frac{1}{3}$ kg $+ 3\frac{1}{9}$ kg

$\frac{21}{6} + \frac{7}{3} + \frac{13}{9} = \frac{63 + 42 + 36}{18} = \frac{141}{18}$ kg

5. Length of four jumps

$\frac{3}{7}$ m $+ \frac{3}{5}$ m $+ \frac{2}{6}$ m $+ \frac{3}{10}$ m $=$ LCM $= 210$

$$\frac{90 + 126 + 70 + 63}{210} = \frac{349}{210} \text{ m}$$

6. $10\frac{2}{9} - 7\frac{1}{5} = \text{LCM} = 45$

$\frac{92}{9} - \frac{36}{5} = \frac{92-36}{45} = \frac{56}{45}$

7. $15 - \left(3\frac{4}{5} + 2\frac{3}{5}\right) = 15 - \left(\frac{19}{5} + \frac{13}{5}\right)$

$15 - \frac{32}{5} = \frac{75-32}{5} = \frac{43}{5}$

8. $60\frac{1}{5}\ \text{kg} - 13\frac{2}{5} = \frac{301}{5} - \frac{67}{5}$

$\frac{301-67}{5} = \frac{234}{5}\ \text{kg}$

Chapter 7 : More About Fractions

Exercise 7A

1. (a) $\frac{15}{16} \times 6 = \frac{15 \times 3}{8} = \frac{45}{8}$ (b) $\frac{6}{21} \times 8 = \frac{48}{21} = \frac{16}{7}$

(c) $16\frac{3}{4} \times 18 = \frac{67}{4} \times 18 = \frac{67 \times 9}{2} = \frac{603}{2}$

(d) $15\frac{9}{25} \times 5 = \frac{384 \times 5}{25} = \frac{384}{5}$

(e) $\frac{9}{16} \times 12 = \frac{9}{16} \times 12 = \frac{9}{4} \times 3 = \frac{27}{4}$

(f) $1\frac{2}{3} \times \frac{3}{50} = \frac{5}{3} \times \frac{3}{50} = \frac{1}{10}$

(g) $5\frac{3}{7} \times \frac{7}{19} = \frac{38}{7} \times \frac{7}{19} = 2$

(h) $105\frac{7}{8} \times 14\frac{2}{3} = \frac{847}{8} \times \frac{44}{3} = 1552\ \frac{5}{6}$

(i) $21\frac{1}{7} \times 13\frac{1}{8} = \frac{148}{7} \times \frac{105}{8}$

$148 \times \frac{15}{8} = \frac{2220}{8} = 279\frac{3}{8}$

2. (a) $\frac{4}{7} \times \frac{6}{11} = \frac{24}{77}$

(b) $\frac{8}{11} \times \frac{44}{48} = \frac{1 \times 4}{6} = \frac{4}{6} = \frac{2}{3}$

(c) $\frac{5}{7} \times \frac{14}{15} = \frac{1 \times 2}{1 \times 3} = \frac{2}{3}$ (d) $80 \times \frac{7}{10} = 8 \times 7 = 56$

(e) $52 \times \frac{4}{13} = 4 \times 4 = 16$ (f) $7 \times 2\frac{1}{7} = 7 \times \frac{15}{7} = 15$

3. (a) $\frac{1}{2} \times \frac{1}{4} \times \frac{1}{6} = \frac{1}{48}$

(b) $\frac{6}{7} \times 15 \times \frac{14}{3} \times \frac{8}{5} = 6 \times 5 \times 2 \times \frac{8}{5} = 2 \times 2 \times 8 \times = 32$

(c) $\frac{3}{2} \times 4\ \frac{1}{2} \times \frac{3}{9} = \frac{3}{2} \times \frac{9}{2} \times \frac{3}{9} = \frac{3}{2} \times \frac{1}{2} \times 3 = \frac{9}{4}$

(d) $3\frac{1}{4} \times 5\ \frac{1}{3} \times \frac{12}{13} = \frac{13}{4} \times \frac{16}{3} \times \frac{12}{13} = \frac{1}{4} \times \frac{16}{3} \times 12$

$= 4 \times 4 = 16$

(e) $\frac{7}{10} \times 30 = 7 \times 3 = 21$

(f) $\frac{7}{13} \times 156 = 7 \times 12 = 84$

Exercise 7B

1. $\frac{1}{7}$ **2.** $\frac{9}{13}$ **3.** $\frac{1}{9}$ **4.** $\frac{7}{9}$ **5.** $\frac{1}{2}$ **6.** $\frac{1}{25}$

7. $\frac{3}{4}$ **8.** $\frac{3}{10}$ **9.** $8\frac{1}{3}$ **10.** $5\frac{6}{7}$ **11.** 0 **12.** 0

Exercise 7C

1. $\frac{7}{2}$ **2.** $\frac{8}{3}$ **3.** $\frac{6}{5}$ **4.** $\frac{12}{7}$ **5.** $\frac{4}{11}$

6. $\frac{8}{15}$ **7.** $\frac{9}{16}$ **8.** $\frac{1}{8}$ **9.** $\frac{1}{12}$ **10.** $\frac{6}{3} = \frac{3}{6} = \frac{1}{2}$

Exercise 7D

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

2. $\frac{1}{8} \times \frac{1}{6} = \frac{1}{48}$

3. $1\frac{1}{2} \div 4 = \frac{3}{2} \times \frac{1}{4} = \frac{3}{8}$

4. $1\frac{3}{4} \div 6 = \frac{7}{4} \times \frac{1}{6} = \frac{7}{24}$

5. $3\frac{3}{8} \div 9 = \frac{27}{8} \times \frac{1}{9} = \frac{3}{8}$

6. $4\frac{2}{3} \div 7 = \frac{14}{3} \times \frac{1}{7} = \frac{2}{3}$

7. $2\frac{2}{9} \div 12 = \frac{20}{9} \times \frac{1}{12} = \frac{5}{9 \times 3} = \frac{5}{27}$

8. $18 \div \frac{3}{4} = 18 \times \frac{4}{3} = 6 \times 4 = 24$

9. $60 \div \frac{15}{8} = 60 \times \frac{8}{15} = 4 \times 8 = 32$

10. $48 \div \frac{12}{7} = 48 \times \frac{7}{12} = 4 \times 7 = 28$

11. $8 \div 3\frac{3}{7} = 8 \div \frac{24}{7} = 8 \times \frac{7}{24} = \frac{7}{3}$

12. $16 \div 2\frac{2}{15} = 16 \div \frac{32}{15} = 16 \times \frac{15}{32} = \frac{15}{2}$

Exercise 7E

1. (a) $\frac{15}{29}$ (b) 1 (c) 1 (d) 0

(e) 0 (f) 0 (g) 1 (h) 1

(i) 1 (j) $\frac{4}{7}$ (k) 0 (l) 0

2. (a) ✗ (b) ✓ (c) ✗ (d) ✗
(e) ✗ (f) ✓ (g) ✓ (h) ✗

Exercise 7F

1. Length of Ribbon = $7\frac{1}{2}$ m = $\frac{15}{2}$ m

$2\frac{1}{2} = \frac{5}{2}$ m pieces that can be cut from Ribbon

$= \frac{15}{2} \div \frac{5}{2} = \frac{15}{2} \times \frac{2}{5} = 3$ pieces

2. Book read by girl $\frac{3}{4}$ th

Book left to read $1 - \frac{3}{4} = \frac{1}{4}$ pages

$\frac{1}{4} \times$ No. of pages = 16

No. of pages = $16 \times 4 = 64$ pages

3. Total money with man = Rs 250

Money given to son & daughter

$250 \times \frac{1}{2}$ = Rs 125 to son

$250 - 125 = 125 \times \frac{1}{5}$ = Rs 25 to younger son

$= 250 - (125 + 25) =$ Rs 100

4. Price of 1 kg = Rs $18\frac{1}{2}$

Price of $3\frac{1}{4} = \frac{13}{4}$ kg sugar = $\frac{37}{2} \times \frac{13}{4} = \frac{481}{8} = 60\frac{1}{8}$

5. Length of cotton cloth = $6\frac{1}{2}$ m

Price = Rs 20/-

Total money preeti regured to pay = $6\frac{1}{2} \times 20$

$\frac{13}{2} = \times 20 = 13 \times 10 =$ Rs 130

6. $7\frac{1}{3} \div 1\frac{5}{6} = \frac{22}{3} \times \frac{6}{11} = 2 \times 2 = 4$

7. Do yourself

8. Total no. of cars = 150 cars

No. of cars in parking lot = $\frac{3}{5} \times 150 = 90$

Cars that can be kept more in parking lot

150 – 90 = 60 cars

Chapter 8 : Decimals

Exercise 8A

1. (a) Zero point six four two

(b) two thousand three hundred forty five point seven zero

(c) Thirty four thousand five hundred sixty seven point four two five

(d) Seven thousand two hundred point zero eight four

2. (a) 500.29 (b) 6315.982

(c) 301.498 (d) 39979.553

3. (a) $3000 + 400 + 60 + 7 + \frac{4}{100} + \frac{8}{1000}$

(b) $\frac{5}{100} + \frac{8}{1000}$ (c) $6 + \frac{9}{1000}$

(d) $30000 + 4000 + 600 + 70 + 8 + \frac{3}{10} + \frac{9}{100} + \frac{5}{1000}$

4. (a) 70007.097 (b) 445.379

(c) 909.037 (d) 39668.574

Exercise 8B

1. (a) 3.60,484.35 (b) 6.70,3.05

(c) 0.800,3.175 (d) 35.040,8.068,94.800

(e) 30.940,42.800,4.678 (f) 3.400,3.670,4.358

2. (a) < (b) < (c) < (d) >

(e) < (f) > (g) < (h) >

3. (a) 5.05,5.67,5.74,5.89 (b) 0.004,0.04,0.4,4.04
(c) 6.006,6.06,6.60,6.66 (d) 74.7,75.64,77.8,77.88

4. (a) 1.1,0.1,0.001,0.0001 (b) 5.55,5.02,5.012,5.005
(c) 8.88,8.8,8.08,8.008 (d) 4.5,4.05,3.9,3.09

Exercise 8C

1. (a)
$$\begin{array}{r} 103.42 \\ 8.65 \\ +\ 72.35 \\ \hline 184.42 \end{array}$$

(b)
$$\begin{array}{r} 4.674 \\ 18.389 \\ +\ 49.678 \\ \hline 72.741 \end{array}$$

(c)
$$\begin{array}{r} 3.4250 \\ 0.0842 \\ +\ 5.1067 \\ \hline 8.6159 \end{array}$$

(d)
$$\begin{array}{r} 85.3600 \\ 72.8460 \\ +\ 9.3562 \\ \hline 167.5562 \end{array}$$

2. (a)
$$\begin{array}{r} 0.770 \\ 77.770 \\ 7.777 \\ +\ 77.700 \\ \hline 164.017 \end{array}$$

(b)
$$\begin{array}{r} 216.05 \\ 0.742 \\ 34.67 \\ +\ 5.745 \\ \hline 257.207 \end{array}$$

(c)
$$\begin{array}{r} 5.006 \\ 15.678 \\ 308.450 \\ +\ 38.400 \\ \hline 367.534 \end{array}$$

(d)
$$\begin{array}{r} 14.0400 \\ 0.5004 \\ 0.3100 \\ +\ 8.3540 \\ \hline 23.2044 \end{array}$$

3. (a)
$$\begin{array}{r} 425.60 \\ -\ 290.74 \\ \hline 134.86 \end{array}$$

(b)
$$\begin{array}{r} 600.00 \\ -\ 42.36 \\ \hline 557.64 \end{array}$$

(c)
$$\begin{array}{r} 724.00 \\ -\ 305.45 \\ \hline 418.55 \end{array}$$

(d)
$$\begin{array}{r} 2000.000 \\ -\ 451.587 \\ \hline 1548.413 \end{array}$$

4. (a)
$$\begin{array}{r} 5.62 \\ -\ 1.59 \\ \hline 4.03 \end{array}$$
(b)
$$\begin{array}{r} 8.36 \\ -\ 4.59 \\ \hline 3.77 \end{array}$$
(c)
$$\begin{array}{r} 5.542 \\ -\ 2.374 \\ \hline 3.168 \end{array}$$

5.
$$\begin{array}{r} 94.42 \\ -\ 55.36 \\ \hline 39.06 \end{array}$$
6.
$$\begin{array}{r} 375.36 \\ -\ 68.45 \\ \hline 306.91 \end{array}$$

7.
$$\begin{array}{r} 124.306 \\ -\ 89.424 \\ \hline 34.882 \end{array}$$
$$\begin{array}{r} 354.060 \\ +\ 34.882 \\ \hline 388.942 \end{array}$$
8.
$$\begin{array}{r} 70.000 \\ -\ 29.154 \\ \hline 40.846 \end{array}$$

Exercise 8D

1. (a)
$$\begin{array}{r} 9.1435 \\ \times\ 8 \\ \hline 73.1480 \end{array}$$
(b)
$$\begin{array}{r} 705.325 \\ \times\ 3 \\ \hline 2115.975 \end{array}$$

(c)
$$\begin{array}{r} 204.763 \\ \times\ 9 \\ \hline 1842.867 \end{array}$$
(d)
$$\begin{array}{r} 105.895 \\ \times\ 7 \\ \hline 741.265 \end{array}$$

(e)
$$\begin{array}{r} 32.5 \\ \times\ 24 \\ \hline 130 \\ 65\times \\ \hline 780 \end{array}$$
(f)
$$\begin{array}{r} 58.9 \\ \times\ 37 \\ \hline 412.3 \\ 1767\times \\ \hline 2179.3 \end{array}$$
(g)
$$\begin{array}{r} 7.28 \\ \times\ 13 \\ \hline 21.84 \\ 728\times \\ \hline 94.64 \end{array}$$
(h)
$$\begin{array}{r} 29.35 \\ \times\ 18 \\ \hline 234.8 \\ 2935\times \\ \hline 528.3 \end{array}$$

2. (a) $17.801 \times 100 = 1780.1$ (b) $8.1123 \times 1000 = 8112.3$
(c) $219.52 \times 6000 = 1317120$
(d) $203.843 \times 20 = 4076.86$
(e) $6.250 \times 500 = 3125$ (f) $84.28 \times 40 = 3371.2$

3. (a)
$$\begin{array}{r} 6.12 \\ \times\ 3.5 \\ \hline 306 \\ 1836\times \\ \hline 21.42 \end{array}$$
(b)
$$\begin{array}{r} 7.134 \\ \times\ 0.32 \\ \hline 14268 \\ 21402\times \\ \hline 2.28288 \end{array}$$
(c)
$$\begin{array}{r} 11.2 \\ \times\ 4.3 \\ \hline 336 \\ 448\times \\ \hline 48.16 \end{array}$$

(d)
$$\begin{array}{r} 17.12 \\ \times\ 0.08 \\ \hline 1.3696 \end{array}$$

(e)
$$\begin{array}{r} 0.236 \\ \times\ 1.4 \\ \hline 944 \\ 236\times \\ \hline 0.3304 \end{array}$$

(f)
$$\begin{array}{r} 1.137 \\ \times\ 2.8 \\ \hline 9.096 \\ 2.274\times \\ \hline 3.1836 \end{array}$$

(g)
$$\begin{array}{r} 24.725 \\ \times\ 5.9 \\ \hline 222.525 \\ 123625\times \\ \hline 145.8775 \end{array}$$

(h)
$$\begin{array}{r} 43.75 \\ \times\ 3.49 \\ \hline 39375 \\ 175\times \\ 13125\times\times \\ \hline 152.6875 \end{array}$$

Exercise 8E

1. (a)
$$\begin{array}{r} 0.137 \\ \times\ 0.24 \\ \hline 0.548 \\ 0.274\times \\ \hline 0.03288 \end{array}$$

(b)
$$\begin{array}{r} 0.316 \\ \times\ 0.135 \\ \hline 158 \\ 948\times \\ 316\times\times \\ \hline 0.04266 \end{array}$$

(c)
$$\begin{array}{r} 2.4316 \\ \times\ 2.35 \\ \hline 12158 \\ 72948\times \\ 48632\times\times \\ \hline 5.71426 \end{array}$$

(d)
$$\begin{array}{r} 1.0004 \\ \times\ 0.35 \\ \hline 5002 \\ 30012\times \\ \hline 0.35014 \end{array}$$

(e)
$$\begin{array}{r} 0.008 \\ \times\ 3.12 \\ \hline 016 \\ 008\times \\ 024\times\times \\ \hline 0.02496 \end{array}$$

(f)
$$\begin{array}{r} 4.0075 \\ \times\ 4.0205 \\ \hline 200375 \\ 00000\times \\ 8015\times\times \\ 00000\times\times\times \\ 1603\times\times\times\times \\ \hline 16.112153375 \end{array}$$

2. (a) 0.8 (b) 11.48 (c) 4.5 (d) 0.7 (e) 5

3. (a) 24.35 (b) 4.8 (c) 235.001 (d) 0 (e) 0

4. (a)
$$\begin{array}{r} 5.1 \\ \times\ 0.5 \\ \hline 2.55 \end{array} \qquad \begin{array}{r} 2.55 \\ \times\ 0.5 \\ \hline 1.275 \end{array} \quad = 1.275$$

(b) $0.3 \times 0.3 \times 0.3$
$0.09 \times 0.3 = 0.027$

(c) $0.5 \times 8.7 \times 0.66$
$4.35 \times 0.66 = 2.871$

(d) $0.308 \times 3.37 \times 0.07$
$1.03796 \times 0.07 = 0.0726572$

(e) $1.01 \times 4.1 \times 0.001$
$4.141 \times 0.001 = 0.004141$

(f) $0.48 \times 0.06 \times 2.3 \times 0.03$
$= 0.0019872$

Exercise 8F

1. $\frac{23.4}{18} = \frac{23.4}{18} \times 10 = \frac{2340}{18} = 1.3$

2. $\frac{8.016}{24} = \frac{8016}{24 \times 1000} = \frac{334}{1000} = 0.334$

3. $\frac{1.008}{14} = \frac{1008}{14 \times 1000} = \frac{72}{1000} = 0.072$

4. $\frac{7.5}{1.25} = \frac{75 \times 100}{125 \times 10} = \frac{3}{5} \times \frac{100}{100} = \frac{300}{50} = 6$

5. $\frac{1.275}{0.85} = \frac{1275 \times 100}{85 \times 1000} = \frac{1500}{1000} = 1.500$

6. $\frac{26.62}{2.2} = \frac{2662.10}{22 \times 100} = \frac{1210}{100} = 12.10$

7. $\frac{0.884}{0.34} = \frac{884 \times 100}{34 \times 1000} = \frac{2600}{1000} = 2.6$

8. $\frac{3.249}{0.09} = \frac{3249 \times 100}{9 \times 1000} = \frac{36100}{1000} = 36.1$

9. $\frac{1.078}{0.7} = \frac{1078}{7} \times \frac{10}{1000} = \frac{154 \times 10}{1000} = \frac{1540}{1000} = 1.540$

10. $\frac{90}{3.6} = \frac{90 \times 10}{36} = \frac{900}{36} = 25$

11. $\frac{625}{2.5} = \frac{625 \times 10}{25} = 250$

12. $\frac{3060}{20.4} = \frac{3060 \times 10}{204} = 15 \times 10 = 150$

13. $\frac{8421}{4.01} = \frac{8421 \times 100}{401} = 21 \times 100 = 2100$

14. $\frac{3417}{20.1} = \frac{3471 \times 10}{775} = 17.26 = 172.6$

15. $\frac{31}{0.775} = \frac{31 \times 1000}{775} = 40$

Exercise 8G

1. Cloth costs of 1 m = ₹ 336.77
Cloth of 6.7 m = 336.77 × 6.7 = Rs 2256.359

2. $\frac{560}{35}$ = ₹ 16 will be received by each player

3. $\frac{478.5}{16.5}$ = 29 tins

4. 10 kg = 2.368 kg
155 kg = 2.368 × 155 = 367 kg 04 g

5. 261.36 ÷ 17.6 = 14.85

6. Distance cover in 1 hr = 80.40 km
Distance cover in 23 hrs = 80.40 × 23 = 1849 km 200 m

7. 45 ÷ 0.03 = 1500 pieces

8. $\frac{4278}{2}$ = ₹ 178.25

9. Cost of 9.75 m = ₹ 460
Cost of 1m = 460 ÷ 9.75 = ₹ 47.18

10. Cost of 18 kg oranges = ₹ 267.30
Cost of per kg = 267.30 ÷ 18 = ₹14.85

Chapter 9 : Rounding of Numbers

Exercise 9A

1. (a) 76 = 80 (b) 47 = 50 (c) 44 = 40
(d) 87 = 90 (e) 362 = 360 (f) 624 = 620
(g) 190 = 190 (h) 117 = 120

2. (a) 642 = 600 (b) 755 = 800 (c) 843 = 800
(d) 729 = 700 (e) 4564 = 4600 (f) 7284 = 7300
(g) 3129 = 3100 (h) 6245 = 6200

3. (a) 7546 = 8000 (b) 6274 = 6000
(c) 4380 = 4000 (d) 17850 = 18000
(e) 42367 = 42000 (f) 99999 = 100000
(g) 84005 = 84000 (h) 627413 = 628000

4. (a) 67548 = 70000 (b) 394286 = 390000
(c) 72545 = 70000 (d) 31624 = 30000
(e) 425367 = 430000 (f) 729485 = 730000
(g) 864954 = 86000 (h) 835796 = 84000

Exercise 9B

1. Do yourself **2.** Do yourself **3.** Do yourself

Chapter 10 : Average

Exercise 10A

1. $$\frac{41.1° + 36.2° + 35° + 32.3° + 30.2° + 37.2° + 31.5°}{7}$$

Anq Temp. $= \frac{243.5}{7} = 34.79°$ C

2. $\frac{12 + 13 + 15}{3} = \frac{40}{3} = 13.3$ years

3. $\frac{3.5 + 6.3 + 5.8 + 12.5 + 4.8}{5} = \frac{32.9}{5} = 6.58$ cm

4. $\frac{65 + 72 + 96 + 83 + 74}{5} = \frac{390}{5} = 78$ avg marks

5. ₹ 4550 × 8 = ₹ 36400, ₹ 6010 × 4 = ₹ 24040

$\frac{36400 + 24040}{12} = \frac{60440}{12} =$ ₹ 5037

6. A $= \frac{216}{8} = 27$ B $= \frac{288}{12} = 24$

Team A Performed better

7. ₹ 6000 × 6 = ₹ 36000 ₹ 7800 × 6 = ₹ 46800

$\frac{36000 + 46800}{12} = \frac{82800}{12} =$ ₹ 6900

8. (a) $\frac{90 + 57 + 70 + 84 + 74}{5} = \frac{375}{5} = 75$

(b) Two subjects = Math & Science

(c) Subjects = 3 = Hindi, English, S.St

Chapter 11 : Ratio and Percentage

Exercise 11A

1. (a) $\frac{10}{50} = \frac{1}{5} = 1 : 5$ (b) $\frac{18}{38} = \frac{9}{19} = 9 : 19$

(c) $\frac{13}{91} = \frac{1}{7} = 1 : 7$ (d) $\frac{39}{27} = \frac{13}{9} = 13 : 9$

(e) 1 hr = 3600 sec = $\frac{30}{3600} = \frac{5}{600} = \frac{1}{120} = 1:120$

(f) 3 weeks = 3 × 7 = 21 days $\frac{5}{21} = 5 : 21$

(g) 3 yr = 3× 12 = 36 months $\frac{5}{21} = 5:36$

(h) 1 day = 24 hrs. $\frac{1}{24} = 1:24$

2. ₹ 1200 × $\frac{5}{12}$ = 100 × 5 = ₹ 500

₹ 1200 × $\frac{7}{12}$ = 100 × 7 = ₹ 700

Mohan will get ₹ 500

3. $\frac{\text{No. of lotus flowers}}{\text{No. of lily flowers}} = \frac{4}{7}$

$\frac{4}{7} = \frac{x}{28} = 7x = 28 \times 4,$ $x = \frac{28 \times 4}{7} = 4 \times 4 = 16$

No. of lotus flowers = 16

4. $\frac{5}{7} = \frac{21}{b} =$ $5b = 21 \times 7,$ $b = \frac{21 \times 7}{5} = 29.4$ cm

5. $4x + 5x + 6x = 25$

$15\ x = 25$

$x = \frac{25}{15} = 1.67$

Side 1 $4x = 4 \times 1.67 = 6.68$ cm

Side 2 $5x = 5 \times 1.67 = 8.35$ cm

Side 3 $6x = 6 \times 1.67 = 10.02$ cm

6. No. of fruits = 660

No. of lemons = $660 \times \frac{6}{11} = 60 \times 6 = 360$

7. $\frac{4}{5} = \frac{24}{a} = 4a = 24 \times 5$

$a = \frac{24 \times 5}{4}$ $6 \times 5 = 30$ years

8. 18 boys 34 girls

(a) $\frac{18}{34} = \frac{9}{17} = 9 : 17$ (b) $\frac{34}{18} = \frac{17}{9} = 17 : 9$

(c) Total students = 18 + 34 = 52

$\frac{34}{52} = \frac{17}{26} = 17:26$

(d) $\frac{18}{52} = \frac{9}{26} = 9:26$

Exercise 11B

1. (a) $\frac{1}{2} \times \frac{50}{50} = \frac{50}{100} = 50\%$ (b) $\frac{1}{4} \times \frac{25}{25} = \frac{25}{100} = 25\%$

(c) $\frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = 75\%$ (d) $\frac{8}{5} \times \frac{20}{20} = \frac{160}{100} = 160\%$

(e) $\frac{3}{5} \times \frac{20}{20} = \frac{6}{100} = 60\%$ (f) $\frac{4}{5} \times \frac{20}{20} = \frac{80}{100} = 80\%$

(g) $\frac{13}{20} \times \frac{5}{5} = \frac{65}{100} = 65\%$

(h) $1\frac{2}{5} \times \frac{7}{5} \times \frac{20}{20} = \frac{140}{100} = 140\%$

(i) $4\frac{1}{5} = \frac{21}{5} \times \frac{20}{20} = \frac{420}{100} = 420\%$

(j) $4\frac{3}{10} = \frac{43}{10} \times \frac{10}{10} = \frac{430}{100} = 430\%$

(k) $2\frac{3}{5} = \frac{13}{5} \times \frac{10}{10} = \frac{260}{100} = 260\%$

(l) $\frac{3}{50} \times \frac{2}{2} = \frac{6}{100} = 6\%$

2. (a) $0.5 = \frac{5}{10} \times \frac{10}{10} = \frac{50}{100}$ (b) $0.15 = \frac{15}{100} = 15\%$

(c) $0.35 = \frac{35}{100} = 35\%$ (d) $0.125 = \frac{125}{1000} = 12.5\%$

(e) $6.25 = \frac{6.25}{100} = 625\%$ (f) $1.03 = \frac{103}{100} = 103\%$

(g) $0.02 = \frac{2}{100} = 2\%$ (h) $0.05 = \frac{5}{100} = 5\%$

Exercise 11C

1. (a) $85\% = \frac{85}{100} = \frac{17}{20}$ (b) $50\% = \frac{50}{100} = \frac{1}{2}$

(c) $6\frac{1}{4}\% = \frac{25}{4} = \frac{25}{4} \times \frac{1}{100} = \frac{25}{400} = \frac{1}{16}$

(d) $8\frac{2}{3}\% = \frac{26}{3} = \frac{26}{3} \times \frac{1}{100} = \frac{26}{300} = \frac{13}{150}$

(e) $11\frac{1}{9}\% = \frac{100}{9} \times \frac{1}{100} = \frac{100}{900} = \frac{1}{9}$

(f) $140\% = \frac{140}{100} = \frac{70}{50} = \frac{35}{25} = \frac{7}{5}$

(g) $150\% = \frac{150}{100} = \frac{30}{20} = \frac{3}{2}$

(h) $300\% = \frac{300}{100} = 3$

2. (a) $55\% = \frac{55}{100} = 0.55$ (b) $\frac{75}{100} = 0.75$

(c) $4\frac{1}{2}\% = \frac{9}{2} \times \frac{1}{100} = \frac{9}{200} = 0.045$

(d) $13.5\% = \frac{135}{10} \times 100 = 0.135$

(e) $5\frac{1}{4}\% = \frac{21}{4} \times \frac{1}{100} = \frac{23}{500} = 0.0525$

(f) $4\frac{3}{5}\% = \frac{23}{5} \times \frac{1}{100} = \frac{21}{400} = 0.046$

(g) $5\frac{3}{4}\% = \frac{23}{4} \times \frac{1}{100} = \frac{23}{400} = 0.0575$

(h) $7\frac{1}{4}\% = \frac{29}{4} \times \frac{1}{100} = \frac{29}{400} = 0.0725$

Exercise 11D

1. (a) $5\ \%\ \text{of}\ 40 = \frac{5}{100} \times 40 = \frac{200}{100} = 2$

(b) $8\% \times 80 = \frac{8}{100} \times 80 = \frac{640}{100} = 6.40$

(c) $12\frac{1}{2}\% \times 300 = \frac{25}{2} \times \frac{300}{100} = \frac{25 \times 150}{100}$

$= \frac{3750}{100} = 37.50$

(d) $60\% \times 90 = \frac{60}{100} \times 90 = \frac{5400}{100} = 54$

(e) $75\% \times 40 = \frac{75}{100} \times 40 = \frac{3000}{100} = 30$

(f) $25\% \times 1200 = \frac{25}{100} \times 1200 = 300$

2. (a) 4% of 350 = $\frac{4}{100} \times 350 = \frac{1400}{100}$ = ₹ 14

(b) 30% of 40 = $\frac{30}{100} \times 40$ = 3 × 4 = 12 Rs

(c) 50% × 800 = $\frac{50}{100} \times 800$ = 50 × 8 = 40

(d) 2% × 1200 = $\frac{2}{100} \times 1200$ = 2 × 12 = 24 Rs

(e) 20% of 8 km = $\frac{20}{100} \times 8000$ = 20 × 80

= 1600 m = 1 km 600 m

(f) $6\frac{1}{4}\% \times 160$ km = $\frac{25}{4} \times \frac{160}{100} = \frac{40}{4}$ = 10 km

3. 1₹ = 100 p = $\frac{72}{100}$ = 72%

4. 1 yr = 365 days = $\frac{292}{365} \times 100$ = 80%

5. $\frac{54}{120} \times 100$ = 45%

6. $\frac{33}{165} \times 100$ = 20%

7. $\frac{576}{900} \times 100$ = 64%

8. 20000 × $\frac{60}{100}$ = 12000 votes

9. 45 × $\frac{20}{100}$ = 9

Neha's brother weight = 45 + 9 = 54 kg

10. ₹ 720 × $\frac{25}{100}$ = ₹ 180 is rebate

Chapter 12 : Project and Loss

Exercise 12A

1. (a) CP = ₹ 425, SP = ₹ 540

Project = SP – CP = ₹ 115

(b) CP = ₹ 1080, SP = ₹ 910

Loss = 1080 – 910 = ₹ 170

(c) CP = 5205, SP = ₹ 4455

Loss = 5205 – 4455 = ₹ 750

(d) CP = ₹ 1790, SP = ₹ 1410

Loss = 1790 – 1410 = ₹ 380

2. (a) CP = ₹ 990, P = ₹ 110

P = SP – CP = 110 = SP – 990

SP = 110 + 990 = ₹ 1100

(b) CP = ₹ 2040, Loss ₹ 250

Loss = CP – SP = 250 = 2040 – SP

SP = 2040 – 250 = ₹ 1790

(c) CP = ₹ 3425, Loss = ₹ 315

Loss = CP – SP = 315 = 3425 – SP

SP = 3425 – 315 = ₹ 3110

(d) CP = ₹ 2670, Profit = ₹ 340

Profit = SP – CP = 340 = SP – 2670

SP = 2670 + 340 = SP = ₹ 3010

3. (a) SP = ₹ 680, P = ₹ 90

CP = 680 – 90 = ₹ 590

(b) SP = ₹ 2456, Loss = ₹ 125

CP = 2456 + 125 = CP = ₹ 2581

(c) SP = ₹ 3768, Loss = ₹ 142

CP = 3768 + 142 = CP = ₹ 3910

(d) SP = ₹ 2877, P = ₹ 235

CP = 2877 – 235 = ₹ 2642

4. 20 books sold @ ₹ 250 = 250 × 20

SP = ₹ 5000, P = ₹ 100

CP = 5000 – 100 = ₹ 4900

5. CP = ₹ 580, Loss = ₹ 35

SP = 580 – 35 = ₹ 545

6. CP = ₹ 15800 + ₹ 250 = ₹ 16050

SP = ₹ 17350, P = ₹ 17350 – 16050 = ₹ 1300

7. SP = ₹ 17620, P= ₹ 390

CP = 17620 – 390 = ₹ 17230

8. SP = ₹ 8010, P= ₹ 140

CP = 8010 + 140 = ₹ 8150

9. CP = ₹ 2357, SP= ₹ 2276

Loss = 2357 – 2276 = ₹ 81

10. CP = ₹ 880, SP= ₹ 1090

Profit = 1090 – 880 = ₹ 210

Chapter 13 : Simple Interest

Exercise 13A

1. P = ₹ 8000, T = 1, R = 5%

$$SI = \frac{8000 \times 5 \times 1}{100} = \frac{4000}{100} = ₹\ 400$$

Amount Paid = 8000 + 400 = ₹ 8400

2. P = ₹ 900, R = 10%, T = 2

$$SI = \frac{900 \times 10 \times 2}{100} = \frac{18000}{100} = ₹\ 180$$

3. $$SI = \frac{1600 \times 12 \times 1}{100} = \frac{19200}{100} = ₹\ 192$$

4. P = ₹ 15000, R = 10%, T = 2 yrs

$$SI = \frac{15000 \times 10 \times 2}{100} = \frac{300000}{100} = ₹\ 3000$$

5. P = ₹ 2500, R = 5%, T = 5 yrs

$$SI = \frac{2500 \times 5 \times 5}{100} = \frac{62500}{100} = ₹\ 625$$

6. P = ₹ 15750, R = 10%, T = 10 yrs

$$SI = \frac{15750 \times 10 \times 10}{100} = \frac{1575000}{100} = ₹\ 15750$$

Amount Paid = 15750 + 15750 = ₹ 31500

7. P = ₹ 1500, R = 9%, T = 5 yrs

$$SI = \frac{1500 \times 9 \times 5}{100} = \frac{67500}{100} = ₹\ 675$$

Amount Paid = 1500 + 675 = ₹ 2175

8. P = ₹ 10400, R = $7\frac{1}{2}$ % = $\frac{15}{2}$ %, T = $3\frac{1}{2}$ yrs = $\frac{7}{2}$ yrs

$$SI = \frac{10400}{100} \times \frac{15}{2} \times \frac{7}{2} = \frac{1092000}{400} = SI = ₹\ 2730$$

Amount Paid = 10400 + 2730 = ₹13130

Chapter 14 : Speed, Distance and Time

Exercise 14A

1. (a) D = 750 km, T = 15 hrs

$$Speed = \frac{Distance}{Time} = \frac{750}{15} = 50, \quad Speed = 50\ km/hr$$

(b) $S = \frac{525}{5} = 105$ km/ hr (c) $S = \frac{1875}{25} = 75$ km / hr

(d) Time = 1 hr 30 min = $1\frac{1}{2} = \frac{3}{2}$ hr

$$S = \frac{1200}{3/2} = \frac{1200 \times 2}{3} = 800\ km / hr$$

2. D = 650 km, T = 10 hrs

$S = \frac{650}{10} = 65$ km/hr

3. For Sheena = D = 6 km, T = 10 min = $\frac{10}{60} = \frac{1}{6}$ hr

$S = \frac{6}{1/6} = 6 \times 6 = 36$ km/hr

Priya = D = 16 km, T = 15 min

$T = \frac{15}{60} = \frac{1}{4}$

Speed = $\frac{16}{1/4} = 16 \times 4 = 64$ km/hr

Priya drove faster.

4. D = 72 km, T = 1hr 30 min = $1\frac{1}{2} = \frac{3}{2}$ hr

$S = \frac{72}{3/2} = \frac{72 \times 2}{3} = \frac{144}{3} = 48$ km/hr

5. Rohan = D = 16 km, T = 30 min = $\frac{1}{2}$ hr

$S = \frac{16}{1/2} = 16 \times 2 = 32$ km/hr

Raghav = D = 12 km, T = 20 min = $\frac{20}{60} = \frac{1}{3}$ hr

$S = \frac{12}{1/3} = 12 \times 3 = 36$ km/hr

Raghav drives faster

Exercise 14B

1. (a) 30 m/sec = 1 lm = 1000 m

1 hr = 3600 sec

$\frac{\frac{30}{1000}}{\frac{1}{3600}} = \frac{30 \times 3600}{1000} = \frac{108000}{1000}$

$\frac{1}{3600}$ S = 108 km/hr

(b) $12.5 \text{ m/s} = \frac{12.5}{1000} \times 3600 = \frac{45000}{1000} = 45 \text{ km/hr}$

(c) $90 \text{ m/sec} = \frac{90}{1000} \times 3600 = 324 \text{ km/hr}$

(d) $10 \text{ m /sec} = \frac{10}{1000} \times 3600 = 36 \text{ km/hr}$

(e) $12\text{m/sec} = \frac{12}{1000} \times 3600 = 43.2 \text{ km/hr}$

(f) $25\text{m/sec} = \frac{25}{1000} \times 3600 = 90 \text{ km/hr}$

2. (a) $18 \text{ km/m} = \frac{18 \times 1000}{3600} = 5 \text{ m/s}$

(b) $27 \text{ km/hr} = \frac{27 \times 1000}{3600} = 7.5 \text{ m/s}$

(c) $36 \text{ km/hr} = \frac{36 \times 1000}{3600} = 10 \text{ m/s}$

(d) $150 \text{ km/hr} = \frac{150 \times 1000}{3600} = 41.6 \text{ m/s}$

(e) $40 \text{ km/hr} = \frac{40 \times 1000}{3600} = 11.11 \text{ m/s}$

(f) $14.4 \text{ km/m} = \frac{14.4 \times 1000}{3600} = 4 \text{ m/s}$

3. $D = 1800 \text{ m} = \frac{1800}{1000} \text{ km}$

$T = 1 \text{ min} = \frac{1}{60} \text{ hr.}$

$S = \frac{1800 \times 60}{1000} = \frac{108000}{1000} = 108 \text{ km/hr}$

4. D = 1650 km, T = 1 hr 50 min

$T = 1 \text{ hr } \frac{50}{60} = 1\frac{5}{6} = \frac{11}{6} = \text{hr}$

$S = \frac{1650 \times 6}{11} = \frac{9900}{11} = 900 \text{ km/hr}$

5. D = 204 km = 204 × 1000 = 204000 km

T = 3 hrs = 3 × 3600 = 10800 sec.

$S = \frac{204000}{10800} = 18.9 \text{ km/hr.}$

Exercise 14C

1. Distance = Speed × Time

S = 100 m/sec, T = 5 min

= 5 × 60 = 300 sec

D = 100 × 300 = 30000 m

$D = \frac{30000}{1000} \text{ m} = 30 \text{ km}$

2. D = 360 km, S = 40 km/ hr

$\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{360}{40} = 9 \text{ hrs.}$

3. $\text{Time} = \frac{20}{30} = \frac{2}{3} \times 60 = 2 \times 20 = 40 \text{ min.}$

4. Scooterist speed = 30 km/hr.

Horse speed = 200 m/min

$\frac{200}{1000} \times 60 = 12 \text{ km/ hr.}$ Ans. Scooterist

5. S = 25 m/min, T = ? D = 2 km 500 m

D = 2500 m,

$T = \frac{2500}{25} = 100 \text{ min}$

100 – 60 = 40 = 1 hr 40 min

6. S = $3\frac{1}{2}$ km/hr = $\frac{7}{2}$ km /hr

T = 30 min = $\frac{1}{2}$ hr

D = $\frac{7}{2} \times \frac{1}{2} = \frac{7}{4}$ = 1.75 km

7. S = 70 km/hr, T = 2 hr 30 min

= $2\frac{1}{2}$ hrs = $\frac{5}{2}$ hrs

D = $70 \times \frac{5}{2} = 35 \times 5 = 175$ km.

8. S = 900 km/hr, T = 40 min = $\frac{40}{60} = \frac{2}{3}$ = hr

D = $900 \times \frac{2}{3} = 300 \times 2 = 600$ km.

Chapter 15 : Lines, Angles and Circles

Exercise 15A

1. (a) Do yourself

2. (a) 42° = Sum of complement angles = 90°

90 – 42 = 48°

(b) 90° – 68° = 22° (c) 90 – 25° = 65°

(d) 90 – 19 = 71° (e) 90 – 79 = 11°

3. Sum of supplemintary angles = 180°

(a) 180° – 0° = 180° (b) 180° – 85° = 95°

(c) 180° – 119° = 61° (d) 180° – 136° = 44°

(e) 180° – 40° = 120°

4. Do yourself

Exercise 15B

1. R = OT, OP, QS, OR

D = PS

2. CD = Chord

3. (a) equal (b) diameter (c) 2 (d) r

(e) radius (f) longest (g) 16 (8 × 2)

4. Do yourself

5. (a) $6 \text{ cm} = \frac{6}{2} = 3 \text{ cm}$

(b) $9.2 \text{ cm} = \frac{9.2}{2} = 4.6 \text{ cm}$

(c) $7.8 \text{ cm} = \frac{7.8}{2} = 3.9 \text{ cm}$

(d) $3.6 \text{ cm} = \frac{3.6}{2} = 1.8 \text{ cm}$

6. (a) $4 \times 2 = 8 \text{ cm}$ (b) $4.8 \times 2 = 9.6 \text{ cm}$

(c) $6.3 \times 2 = 12.6 \text{ cm}$ (d) $5.4 \times 2 = 10.8 \text{ cm}$

7. (a) Circumferences $= 2\pi r$

$r = 7 = \frac{2 \times 22 \times 7}{7} = 44 \text{ cm}$

(b) $r = 3.5 = \frac{2 \times 22 \times 3.5}{7} = 22 \text{ cm}$

(c) $r = 5.6 \text{ cm} = \frac{2 \times 22 \times 5.6}{7} = 35.2 \text{ cm}$

(d) $r = 2.8 \text{ cm} = \frac{2 \times 22 \times 2.8}{7} = 17.6 \text{ cm}$

8. (a) $C = 2\pi r$

$44 = \frac{2 \times 22 \times r}{7}$

$44 \times 7 = 2 \times 22 \times r = r = \frac{44 \times 7}{2 \times 22} = \frac{308}{44}$

$r = 7 \text{ cm}, d = 7 \times 2 = 14 \text{ cm}$

(b) $35.2 = \frac{2 \times 22 \times r}{7}$

$r = \frac{35.2 \times 7}{2 \times 22} = \frac{246.4}{44} = 5.6 \text{ cm}$

$d = 5.6 \times 2 = 11.2 \text{ cm}$

(c) $66 \text{ cm} = 66 = \dfrac{2 \times 22 \times r}{7}$

$r = \dfrac{66 \times 7}{2 \times 22} = \dfrac{462}{44} = 10.5 \text{ cm}$

$d = 10.5 \times 2 = 21 \text{ cm}$

(d) $30.8 = \dfrac{2 \times 22 \times r}{7}$

$r = \dfrac{30.8 \times 7}{2 \times 22} = \dfrac{215.6}{44} = 4.9 \text{ cm}$

$d = 4.9 \times 2 = 9.8 \text{ cm}$

9. (a) o (b) ST, PR (c) PSR, PTQR

(d) M, K, L (e) PR (f) PR

10. (a) Diameter = 2 × radius

$\text{Radius} = \dfrac{\text{Diameter}}{2}$

Chapter 16 : Triangles and Quadrilaterals

Exercise 16A

1. (a) (5 + 3) > 4 = 8 > 4, Yes

(b) (3 + 4) > 5 = 7 > 5, No

(c) (4 + 5) > 3 = 9 > 3, Yes

2. (a) 60 + 90 + 30 = 180°, Yes

(b) 50 + 50 + 50 = 150°, No

(c) 90 + 90 + 20 = 200°, No

(d) 110 + 90 + 30 = 230° No

3. (a) 90° + 30° + <B = 180

<B = 180° – 120° = <B = 60°

(b) 25 + 90 + <P = 180

<P = 180 – (25 + 90)

<P = 180 – 115 = 65°

(c) 45 + 45 + <m = 180°

<m = 180° – 90° = <m = 90°

(d) 60° + 60° + <0 = 180°

<0 = 180° – 120° = <0 = 60°

(e) $90° + 45° + \angle A = 180°$

$\angle A = 180° - (90° + 45°)$

$\angle A = 180 - 135 = 45°$

(f) $80° + 50° + \angle R = 180°$

$\angle R = 180° - 130°$

$\angle R = 50°$

Exercise 16B

1. (a) Equilateral (b) Scalene

(c) Scalene (d) Equilateral

2. (a) acute (b) acute

(c) right (d) obtuse

Exercise 16C

1. (a) AB, BC, CD, DA (b) A, B, C, D

(c) AC, BD (d) CD (e) BC

2. (a) 90° (b) square, Rhombus (c) Trapezium

(d) parallel (e) 90°

3. (a) (T) (b) (F) (c) T (d) T (e) F

4. (a) 90° (b) 9° (c) ZY (d) equal

(e) 360°

Chapter 17 : Area and Volume

Exercise 17A

1. (a) Side = 4 cm

Area of square = $4s = 4 \times 4 = 16$ cm^2

(b) Side = 13 cm

Area = $4 \times 13 = 52$ cm^2

(c) Side = 6.5 cm

Area = $6.5 \times 4 = 26$ cm^2

(d) Side = 3.5 m

Area = $4 \times 3.5 = 14$ m^2

(e) Side = 25.5 cm

Area = $4 \times 25.5 = 102$ cm^2

(f) Side $= 3\frac{1}{3}$ cm $= \frac{10}{3}$

Area $= 4 \times \frac{10}{3} = \frac{40}{3} = 13.34$ cm^2

2. (a) Area of Rectangle = length × breadth

$l = 9$ m, $b = 8$ m

$A = 9 \times 8 = 72$ m^2

(b) $A = 15 \times 12 = 180$ m^2

(c) $A = 20 \times 10 = 200$ m^2

(d) $l = 20\frac{1}{2}$ m $= \frac{41}{2}$ m

$B = 5\frac{1}{2}$ m $= \frac{11}{2}$ m

$A = \frac{41}{2} \times \frac{11}{2} = \frac{451}{4} = 112.75$ m^2

3. Area of square = 4s

$4 \times 7 = 28$ m^2

4. Area of Rectangle = l × b

$= 1.5 \times 6. = 90$ cm^2

5. Area of carpet $= 8 \times 5 = 40$ m

6. (a) $(4.5 \times 3) + (3.5 \times 2)$

$13.5 + 7 = 20.5$ m^2

(b) $(6 \times 2) + (6 \times 2) + (3 \times 3)$

$12 + 12 + 9 = 33$ cm^2

7. (a) Area of hall $= 10 \times 8 = 80$ m^2

Cost o flooring $= 80 \times 32 =$ ₹ 2560 sqm.

8. (a) Area of path $= 60 \times 1.2$m $= 72$m^2

Area of stone $= 12 \times 7.5 = 90$ cm^2

72m = 72000 cm

1 $= \frac{72000}{90} = 8000$ stones.

Exercise 17B

1. (a) Volume of cube = l × l × l

$V = 6 \times 6 \times 6 = 216$ cm^3

(b) $V = 7.5 \times 7.5 \times 7.5$
$= 421.88 \text{ cm}^3$

(c) $12 \times 12 \times 12 = 1728 \text{ m}^3$

(d) $15.5 \times 15.5 \times 15.5 = 3723.875 \text{ m}^3$

2. (a) Volume of cuboid $= l \times b \times h$
$10.5 \times 7.5 \times 4 = 315 \text{ cm}^3$

(b) $10 \times 8 \times 6 = 480 \text{ cm}^3$

(c) $5 \times 3 \times 1.5 = 22.5 \text{ m}^3$

(d) $4 \times 2.5 \times 1.5 = 15 \text{ m}^3$

3. (a) $l = 10$ cm, $b = 6$ cm, $c = 4$ cm
$V = 10 \times 6 \times 4 = 240 \text{ cm}^3$

4. Volume of cuboid $= 6 \times 3 \times 3 = 54 \text{ cm}^3$
Volume of cube $= 4 \times 4 \times 4 = 64 \text{ cm}^3$
Volume of cube is greater.

5. Volume of wooden block
$= 13 \times 13 \times 13 = 2197 \text{ cm}^3$

6. Volume of soap $= 7 \times 5 \times 2.5 = 87.5 \text{ cm}^3$
Volume of cardboard $= 54 \times 40 \times 25 = 56000 \text{ cm}^3$

$= \dfrac{56000}{87.5} = 640$ soap cakes

7. Volume of brick $= 20 \times 10 \times 8 = 1600 \text{ cm}^3$
Volume of wall $= 4 \times 3 \times 22 = 264 \text{ m}^3$
$264 \times 1000 = 264000 \text{ cm}^3$

$= \dfrac{264000}{1600} = 165$ bricks

8. $V = l \times b \times h$
$4500 = 15 \times 6 \times h,$

$h = \dfrac{4500}{15 \times 6} = \dfrac{4500}{90} = 50$

Chapter 18 : Bills

Exercise 18A

1. Bill
M/S Roomy General store

Bill no. 123 DT = 12.2.2020

Address : XYZ

S.No.	Items	Qty	Rate per unit	Amount
1.	Handkerchieves	4	₹ 8.75	₹ 35
2.	Socks	2	₹ 20	₹ 40
3.	Ribbon	3	₹ 5.50	₹ 16.5
4.	Buttons	2	₹ 1.25	₹ 2.5
5.	Woof	500g	₹ 300/kg	₹ 150
				₹ 244

Rupees Two hundred forty four.

(For Roomy General store)

2. Bill

M/S Standard Sweets

Bill no. 45 DT = 0.3.03.2023

Address : Dashmesh Nagar

S.No.	Items	Qty	Rate perunit	Amount
1.	Barfi	2kg	130	260
2.	Namkeen	1kg	90	90
3.	Rasgulla	25	5	125
4.	Samosas	15	4	60
				₹ 535

3. Zeera = 100 g @ 130 / kg = ₹ 13 – 209

₹ 117

Chapter 19 : Pictorial representation

Exercise 18A

1. (a) Kolkata (b) Chennai (c) 1 crore

2. (a) 3000 books (b) 2000 (c) (3000 – 1500) = 1500

(d) (2000 + 2500 + 3500 + 1500 + 3000) = 12500 books

3. (a) 45 (b) D. 50 (c) C, 35

(d) 40 + 45 + 35 + 50 = 170 students

4. (a) Times of India (b) The Hindu

(c) 20000 + 25000 + 15000 + 10000 = 70000

(d) 10000