VRINDAVAN
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BASED ON
NEP/NCF

Maths

Teacher's Manual

Class V

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Vrindavan Books International
New Delhi

Contents

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1 Revision

Exercise 1.1

1. (a) 21003 — Twenty one thousand three
   (b) 61257 — Sixty one thousand two hundred fifty-seven
   (c) 78880 — Seventy eight thousand eight hundred eighty
   (d) 298764—Two lakh ninety eight thousand seven hundred sixty-four
2. (a) Nine thousand eight hundred — 9800
   (b) Seventy thousand six — 70006
   (c) Fifty five thousand four hundred sixty nine — 55469
   (d) Thirteen thousand four hundred seven — 13407
3. (a) Smallest five digit number — 10000
   (b) The greatest 6-digit number — 999999
   (c) The smallest whole number — 0
   (d) In Roman numerals, 39 — XXXIX
4.

		Place Value	Face Value
(a)	7843<u>0</u>	30	3
(b)	4<u>8</u>452	8000	8
(c)	38<u>9</u>760	9000	9
(d)	<u>6</u>82878	600000	6

5. Greatest number = 98654; Smallest number = 45689
6. 5544332, 568342. 473002, 86304, 49832
7. (a) 67812 + 8392 + 190 = 76394
   (b) 7883 + 86 + 84533 = 92502
   (c) 470089 + 83694 + 9360 + 76 = 563219
   (d) 6006 + 66006 + 26660 + 666666 = 765338
8. (a) 50789 – 29968

$$\begin{array}{r} 50789 \\ -29968 \\ \hline 20821 \end{array}$$

   (b)

$$\begin{array}{r} 93690 \\ -78963 \\ \hline 14727 \end{array}$$

(c)
$$\begin{array}{r} 90130 \\ -26243 \\ \hline 63887 \end{array}$$

(d)
$$\begin{array}{r} 360433 \\ -18679 \\ \hline 341754 \end{array}$$

9. Sum of $13048 + 45532 = 58580$

As
$$\begin{array}{r} 98705 \\ -58580 \\ \hline 40125 \end{array}$$

So, 40125 must be subtracted from 98705 to make it equal to sum of 13048 and 45532.

10. According to question
$$\begin{array}{r} 30000 \\ -18603 \\ \hline 11397 \end{array}$$

So, 11397 must be added to 18603 to make it equal to 30000.

11. $13 + 6 \div 3 + 6 \times 4 = 13 + 2 + 6 \times 4 = 13 + 2 + 24 = 39$

12. (a)
$$\begin{array}{r} 3638 \\ \times\ 49 \\ \hline 32742 \\ 14552\times \\ \hline 178262 \end{array}$$

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

13. (a)
$$\begin{array}{r|l} 45 & 7899 \\ & -45 \\ & \hline 339 \\ & -315 \\ & \hline 249 \\ & -225 \\ & \hline 24 \end{array}$$ 175

Quotient = 175
Remainder = 24

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

Quotient = 676
Remainder = 5

14. (a) $15 \times 1 = 15$
$15 \times 2 = 30$
$15 \times 3 = 45$
$15 \times 4 = 60$
$15, 30, 45, 60$

(b) $27 \times 1 = 27$
$27 \times 2 = 54$
$27 \times 3 = 81$
$27 \times 4 = 108$
$27, 54, 81, 108$

15. (a)

2	12
2	6
3	3
	1

2	18
3	9
3	3
	1

$12 = 2 \times 2 \times 3$; $18 = 2 \times 3 \times 3$
H.C.F. $= 2 \times 3 = 6$

(b)

3	15
5	5
	1

2	40
2	20
2	10
5	5
	1

2	60
2	30
3	15
5	5
	1

$15 = 3 \times 5$ $40 = 2 \times 5 \times 2 \times 2$ $60 = 3 \times 5 \times 2 \times 2$
H.C.F. $= 5$

16. (a) 12 and 18

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

L.C.M. $= 2 \times 2 \times 3 \times 3 = 36$

(b) 12, 24 and 48

2	12, 24, 48
2	6, 12, 24
3	3, 6, 12
2	1, 2, 4
2	1, 1, 2
	1, 1, 1

L.C.M. $=$
$2 \times 2 \times 3 \times 2 \times 2 = 48$

17. (a) $\frac{5}{7} + 1\frac{2}{7} + \frac{1}{7}$

$= \frac{5}{7} + \frac{9}{7} = \frac{1}{7}$ (L.C.M. $= 7$)

$$= \frac{5+9+1}{7} = \frac{15}{7} = 2\frac{1}{7}$$

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

$$= \frac{29+11+7}{8} = \frac{47}{8} = 5\frac{7}{8}$$

8. (a) $\frac{9}{12} - \frac{5}{12} = \frac{9-5}{12} = \frac{4}{12} = \frac{1}{3}$

(b) $2\frac{1}{4} - 1\frac{3}{4} = \frac{9}{4} - \frac{7}{4} = \frac{2}{4} = \frac{1}{2}$

19. (a) $0.2 = \frac{2}{10} = \frac{1}{5}$ (b) $0.07 = \frac{7}{100}$

(c) $1.035 = \frac{1035}{1000}$ or $\frac{207}{200}$

20. Cost of 5 copies = ₹ 65

Cost of 1 copy = $\frac{65}{5}$ = ₹ 13

1 dozen = 12 copies

So, cost of 12 copies = 12 × 13 = ₹156

21. Vidya purchases

Wheat	=	20 . 500 kg
Rice	=	10 . 750 kg
Pulses	=	4 . 250 kg
Total Weight	=	35 . 350 kg

Total weight is 35.5 kg.

22. A grain merchant

On a day he had	=	3090 . 750 kg
sold during day	=	1500 . 800 kg
		1589 . 950 kg

So, 1589.95 kg of wheat was left with the grain merchant.

23. (a) 1 cm has = 1/100 m (b) 1 gm has = 0.001 kg

15 cm has = $\frac{1}{100} \times 15 = 0.15$ m 345gm has = 0.345 kg

(c) 1 paise = ₹ 0.01 (b) 1 mℓ = 0.001 ℓ

5 p = ₹0.05 500 mℓ = 0.500 ℓ

24. (a) equilateral (all sides are equal)

(b) Isosceles (two sides are equal)

(c) Scalene (no side is equal)

25. Draw yourself, Perimeter = $2(l \times b) = 2(5 + 3.5) = 17$ cm

26. (a) Vertex is B; Arms are AB, BC

(b) Vertex is Q; Arms are QP, QR

27. (a) one (b) 90° (c) 90° (d) 90°

(e) 90°

2 Roman Numerals

Exercise 2.1

1. (a) 17 = XVII (b) 29 = XXIX
   (c) 55 = LV (d) 84 = LXXXIV
   (e) 90 = XC (f) 99 = XCIX
2. (a) XXI = 21 (b) XL = 40
   (c) XCIX = 99 (d) LXXXI = 81
   (e) LXXVI = 76 (f) XLIX = 49
3. (a) XV < LV as 15 < 55 (b) XXIV < LIV as 34 < 54
   (c) XXX < LXXIV as 30 < 74
   (d) XL < XLIX as 40 < 49 (e) LVIII < LXX as 58 < 70
   (f) XCIX = XCIX as 99 = 99
4. (a) XVI + XVIII ☐ XXXIV
   16 + 18 ☐ 34
   34 = 34
   (b) XVI + XX ☐ L
   16 + 20 ☐ 50
   36 < 50
   (c) XXXIII + XLIII ☐ LXXXIII
   33 + 43 ☐ 83
   76 < 83
   (d) LXX – LX ☐ X
   70 – 60 ☐ 10
   10 = 10
   (e) LI + XIV ☐ LXXV
   51 + 14 ☐ 75
   65 < 75
   (f) C – X CII ☐ IX
   100 – 92 ☐ 9
   8 < 9
5. (a) XXX (b) II (c) LV (d) XCV

(e) XC (f) XX

6. (a) CM, XL, CD, XC
900, 40, 400, 90
So, 900, 400, 90, 40 CM, CD, XC, XL

(b) XIX, LIX, LVII, XXXI
19, 59, 57, 31
59, 57, 31, 19
LIX, LVII, XXXI, XIX

(c) XCI, XCV, LII, XLVII
91, 95, 52, 47
95, 91, 52, 47
XCV, XCI, LII, XLVII

(d) LV, LX, XI, XC
55, 60, 11, 90
90, 60, 55, 11
XC, LX, LV, XI

7. Ascending order

(a) XLII, XXXII, XXIV, XCV
42, 32, 24, 95
24, 32, 42, 95
XXIV, XXXII, XLII, XCV

(b) V, C, X, XL
5, 100, 10, 40
5, 10, 40, 100
V, X, XL, C

(c) LV, XLV, LXV, XCV
55, 45, 65, 95
45, 55, 65, 95
XLV, LV, LXV, XCV

(d) XXX, LV, XIII, XVIII
30, 55, 13, 18
13, 18, 30, 55
XIII, XVIII, XXX, LV

(e) XX, XL, LXXX, LXXIII
20, 40, 80, 73

20, 40, 73, 80
XX, XL, LXXIII, LXXX

Test Paper

1. Mental Math

(a) CXLIX = 149
(b) XXXIX = 39
(c) DCCIX = 760
(d) DCCLXV = 765
(e) XL = 40
(f) LX = 60
(g) CXLVII = 147
(h) CXC = 192

II. Multiple Choice Questions

1. XL LX
   40 < 60 (b)
2. XLIX L
   49 < 50 (b)
3. XC CIX
   90 < 109 (b)
4. DC CD
   600 > 400 (a)
5. CCL CD
   < 400 (b)
6. 90 = XC (b)
7. XCIX = 99 (b)

Activity Time

1. V, L, D
2. BOAR from BOXCAR; XC = 90

(b) ELEVEN & SEVEN
V + V = 5 + 5 = 10 = X
in SIX

(c) After subtracting ING from LIVING we get
LIV i.e. 54
as which left 4 more than the half a century.

3 Large Numbers

Exercise 3.1

1. (a) 76532321
   Seven crore sixty five lakh thirty two thousand three hundred twenty-one.
   (b) 98700544
   Nine crore eighty seven lakh five hundred forty-four
   (c) 800000100
   Eighty crore one hundred
   (d) 223344555
   Twenty two crore thirty three lakh forty four thousand five hundred fifty-five
   (e) 500406003
   Fifty crore four lakh six thousand three
2. (a) Eight crore sixty lakh seventeen thousand and forty
   86017040
   (b) Tweleve crore sixty two lakh eighteen thousand and fourteen.
   126218014
   (c) Six crore sixty three lakh ninety five thousand six hundred and four
   66395604
   (d) Eighty four crore twenty seven lakh ninety six thousand eight hundred and eighteen
   842795818
   (e) Ninety nine crore nine lakh ninety thousand nine hundred and ninety-nine
   990990999
3. (a) 876532109 — 800000000
   (b) 678523106 — 8000000
   (c) 100830200 — 800000
   (d) 968965643 — 8000000

, 4. (a) 45,16,10,417
400000000 + 50000000 + 1000000 + 600000 + 10000 + 400 + 10 + 7

(b) 87,62,40,216
800000000 + 70000000 + 6000000 + 200000 + 40000 + 200 + 10 + 6

(c) 60,25,39,782
600000000 + 2000000 + 500000 + 30000 + 9000 + 700 + 80 + 2

5. (a) 50,00,00,000 + 8,00,00,000 + 60,000 + 3,000 + 400 + 1 = 58,00,63,401

(b) 30,00,00,000 + 1,00,00,000 + 6,00,000 + 70,000 + 300 + 1 = 31,06,70,301

(c) 4,00,00,000 + 30,00,000 + 90,000 + 8,000 + 600 + 40 + 2 = 430908642

6. (a) 135789357
One hundred thirty five million seven hundred eighty nine thousand and three hundreed fifty-seven

(b) 63140432
Sixty three million one hundred forty thousand four hundred thirty-two

(c) 133456789
One hundred thirty three million four hundred fifty six thousand seven hundred eighty-nine

(d) 5160300460
Five billion one hundred sixty million three hundred thousand four hundred sixty.

(e) 201301401
Two hundred one million three hundred one thousand four hundred one

7. (a) Five million, thirty-eighty thousand, eighty four
5,038,084

(b) One hundred twenty seven million five hundred thousand sixty four
127,500,064

(c) Two hundred ninety million, three hundred thousand two hundred one

290,300,201

(d) Five hundred seventy million two hundred eighty, thousand seven hundred thirty
570,280,730

(e) Seventy nine million, four hundred sixty four thousand nine hundred forty-six
79,464,946

8. (a) 789000213; 700,000,000
   (b) 987123456; 7,000,000
   (c) 600704000; 700,000
   (d) 978654312; 70,000,000
9. (a) 1 crore = 100 lakh (b) 1 million = 10 lakh
   (c) 1 crore = 10 million (d) 1 billion = 1000 million
   (e) The successor of 90,909,808,999 + 1
   = 90,909,809,000
   (f) The predecessor of 80,808,700,000 – 1
   = 80,808,699,999

Exercise 3.2

1. (a) 3,76,44,385 > 3,61,99,888
   (b) 4,02,40,872 > 4,01,04,316
   (c) 4,28,60523 < 45600503
   (d) 50550505 > 50505505
   (e) 88,30,01,000 < 88,39,99,999
   (f) 76,33,555 < 1,70,56,190
2. Ascending order
   (a) 50009327, 3697898, 3999789, 30407107
   399789, 3697898, 30407107, 50009327
   (b) 7893218, 1839876, 798543, 645321
   645321, 798543, 1839876, 7893218
   (c) 88888, 88889, 777789, 6666789
   88888, 88889, 777789, 6666789
   (d) 14867520, 90507200, 666666, 555555
   555555, 666666, 14867520, 90507200
   (e) 24865710, 20607206, 20007326, 3896897
   3896897, 20007326, 20607206, 24865710

3. Descending order
   (a) 87654321, 1345678, 3345678, 1432876
   87654321, 3345678, 1432876, 1345678
   (b) 1088888, 11188776, 2000000, 33224457
   33224457, 11188776, 2000000, 1088888
   (c) 98765432, 87654321, 76543210, 90807060
   98765432, 90807060, 87654321, 76543210
   (d) 8100008, 810008, 8400084, 83000
   8400084, 8100008, 810008, 83000
   (e) 41856710, 50207306, 30007216, 2768976
   50207306, 41856710, 30007216, 2768976
4. (a) 3, 4, 6, 0, 8
   Smallest — 30468; Greatest — 86430
   (b) 3, 4, 0, 5, 6, 8, 7
   Smallest — 3045678 Greatest — 8765430
   (c) 8, 0, 2, 3, 6, 8, 7, 4
   Smallest — 2 0 3 4 6 7 8 8 Greatest — 88764320
   (d) 1, 3, 2, 5, 0, 4, 9, 7
   Smallest — 10234579 Greatest —97543210
5. 0, 3, 5, 6, 7, 8, 2
   Greatest — 87653210 Smallest — 10235678
6. 345612083; 380216543
   First number is smaller
7. 0, 1, 2, 3 and 4
   44443210 10000234
   | |
   Greatest smallest
8. 6 3 4 5 8 9 0 3; 3 0 9 8 5 4 3 6
   First number is greater

Test Paper

I. Mental Maths

1. 7,53,56,908
   Seven crore fifty three lakh fifty six thousand nine hundred eight

75,356,908
Seventy five million, three hundred fifty six thousand nine hundred eight.

2. Predecessor = 3,50,00,000 – 1 = 34,999,999
3. Successor = 3,69,99,999 + 1 = 370,00,000
4. 4,40,50,790
   40000000 + 4000000 + 50000 + 700 + 90
5. 29408631 < 29427830
   65480737 > 64580773

Multiple Choice Questions (M.C.Q.)

1. The predecessor of Smallest 9 digit number is
   100000000 – 1 = 99999999 (c)
2. Successor of one million is
   1000000 + 1 = 1000001 (a)
3. 28,00,569
   800000 (b)
4. (b) 444780
5. (d) 39,160,152 > 39,010,152
6. 86,75,39
   800000 + 60000 + 7000 + 500 + 30 + 9 (b)

Activity Time

1. 19,99,999; 18,99,999; 17,99,900; 19,88,999
   Ascending order :
   17,99,900; 18,99,999; 19,88,999; 19,99,999
   Now add 1000 to each number
   20,000,999; 1900999; 18,00,900; 1989999; descending order
   20,00,999; 19,89,999; 19,00,999; 18,00,900
2. 4, 6, 0, 5, 3, 4, 0
   Smallest — 3004456 Greatest — 6544300
   8, 2, 1, 2, 4, 6, 7, 7
   Smallest — 12246778 Greatest — 87764221

4 Operations Involving Large Numbers

Exerciswe 4.1

1. (a)
```
   1 1 1
   7 5 4 7 5 4
 + 8 0 7 6 5 3
 -------------
   1 5 6 2 4 0 7
```

(b)
```
   1 1 1   1
   7 6 7 8 9 0 8
 + 2 3 4 6 7 5
 -------------
   7 9 1 3 5 8 3
```

(c)
```
   1 1   1 1
   7 9 7 9 4 9 4
 + 3 3 2 2 0 1 5
 +   3 2 4 4 6 6
 -------------
   1 1 6 2 5 9 7 5
```

(d)
```
   1 2 1 1 2 1
   9 0 8 8 7 7 6 6
 + 7 5 5 7 4 5 9 4
 +   3 0 7 3 4 7 6
 -------------
   1 6 9 5 3 5 8 3 6
```

2. (a)
```
   2 1 2 1 2
   7 6 9 2 5 0 5
 + 1 3 4 6 8 9
 +   7 3 8 4 6
 -------------
   7 9 0 1 0 4 0
```

(b)
```
     2 2 2 1
   6 7 0 4 6 9 8 3
 + 4 7 9 0 8 4 6 5
 + 3 2 1 0 9 8 7 6
 -------------
   1 4 7 0 6 5 3 2 4
```

3. (a)
```
   1 1 1 1 1
   7 7 8 8 5 6 5
 + 2 2 2 3 4 3 4
 +   5 7 6 6 5 7
 -------------
   1 0 5 8 8 6 5 6
```

(b)
```
   1 1 1 1 1 1
   9 8 8 9 9 8 8
 +   1 0 0 0 0 3 4
 +   7 7 7 7 7 7 7
 -------------
   1 8 6 6 7 7 9 9
```

(c)
```
   1 1 1 1 1 1
   2 3 3 2 2 3 2
 +   4 4 5 5 0 5
 +   7 7 7 9 9 9
 -------------
   3 5 5 5 7 3 6
```

4. (a)

		1	**1**	**1**	
	4	4	5	**2**	3
+	2	**1**	3	2	4
+	4	3	**5**	5	6
	1	0	9	4	0 **3**

(b)

		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)

	7	**17**		**4**	**9**	**14**
	8	7	0	5	0	4
–	3	9	0	2	4	7
	4	8	0	2	5	7

(b)

2	**11**	**10**	**9**	**14**	**13**	**16**	
3	2	1	0	5	4	6	
– 1	4	3	2	8	7	9	
1	7	7	7	6	6	7	

(c)

6	**14**	**16**	**15**	**6**	**14**	**17**	
7	5	7	5	7	5	7	
– 2	6	8	9	6	5	9	
4	8	8	6	0	9	8	

(d)

	9	**9**	**15**	**9**	**17**			
1	0	0	6	0	7	0	8	
–	1	2	7	8	9	0	8	
	8	7	8	1	8	0	0	

6. (a)

5	**10**	**7**	**11**	**9**	**12**	**10**	
6	**0**	8	2	**0**	3	0	
–	5	**2**	**2**	2	3	4	
5	5	5	9	7	**9**	**6**	

(b)

	4	**11**			**5**	**11**	
8	5	**1**	4	5	6	**1**	
– 6	**1**	5	**1**	3	**1**	7	
2	3	6	3	**2**	4	4	

7. (a)

		5	4	5	5	5	5
+		3	2	1	0	3	0
		8	6	6	5	8	5

		8	6	6	5	8	5
–		6	5	4	3	2	1
		2	1	2	2	6	4

(b)

				7	**16**	**15**	**15**
	6	7	8	8	7	6	5
–	4	7	8	7	8	8	8
	2	0	0	0	8	7	7

	2	0	0	0	8	7	7
+	2	1	0	2	1	0	2
	4	1	0	2	9	7	9

(c)

					3	**17**	**15**
8	6	4	8	5	4	8	5
–4	5	3	2	1	0	9	6
4	1	1	6	4	3	8	9

		1	**1**	**1**	**1**	**1**	
4	1	1	6	4	3	8	9
+2	1	2	3	9	9	7	6
6	2	4	0	4	3	6	5

Exercise 4.2

1.
$$\begin{array}{rcccccc} & \mathbf{2} & \mathbf{9} & \mathbf{9} & \mathbf{9} & \mathbf{9} & \mathbf{10} \\ & 3 & 0 & 0 & 0 & 0 & 0 \\ - & & 8 & 6 & 9 & 5 & 0 & 5 \\ \hline & 2 & 1 & 3 & 0 & 4 & 9 & 5 \end{array}$$

2130495 should be added to 869505 to get 30,00,000

2.
$$\begin{array}{rcccccc} & & & \mathbf{1} & \mathbf{1} & \mathbf{1} & \\ & & 8 & 2 & 0 & 6 & 5 & 7 \\ + & & 2 & 3 & 6 & 5 & 4 & 3 \\ \hline & 1 & 0 & 5 & 7 & 2 & 0 & 0 \end{array}$$

The larger number is 1057200

3.
$$\begin{array}{rcccccccc} & \mathbf{1} & \mathbf{1} & \mathbf{1} & \mathbf{2} & \mathbf{1} & \mathbf{2} & \mathbf{1} & \mathbf{1} \\ & 5 & 4 & 5 & 6 & 7 & 8 & 9 & 6 \\ & 8 & 4 & 5 & 6 & 7 & 8 & 7 & 3 \\ & 2 & 4 & 7 & 6 & 8 & 2 & 4 & 0 & 4 \\ \hline & 3 & 8 & 6 & 8 & 1 & 8 & 1 & 7 & 3 \end{array}$$

$\therefore$ Total population of the states is 3868173 **Ans.**

4. Three Candidates got the vote

$$\begin{array}{lcccccccc} & & \mathbf{1} & \mathbf{2} & \mathbf{1} & \mathbf{1} & \mathbf{1} & \mathbf{1} & \\ \text{Ist} & & 6 & 5 & 8 & 7 & 2 & 9 & 0 \\ \text{IInd} & & 2 & 3 & 6 & 4 & 3 & 5 & 1 \\ \text{IIIrd} & & & 5 & 8 & 0 & 4 & 0 & 9 \\ \hline & & 9 & 5 & 3 & 2 & 0 & 5 & 0 \end{array}$$

Total number of votes polled are 9532050

5. A Godown has bag of
$$\begin{array}{lcccccccc} & \mathbf{1} & & \mathbf{1} & \mathbf{1} & \mathbf{2} & \mathbf{1} & \mathbf{2} & \\ \text{Wheat} & & 6 & 0 & 4 & 6 & 7 & 7 & 9 \\ \text{Rice} & 2 & 0 & 0 & 0 & 0 & 8 & 2 & 7 \\ \text{Sugar} & 1 & 8 & 8 & 5 & 5 & 8 & 8 & 4 \\ \hline & 4 & 4 & 9 & 0 & 3 & 4 & 9 & 0 \end{array}$$

Total number of bags were 44903490

6. Ajay expenditure to build the house

	1	**1**	**1**	**1**	**1**	
Land	2	6	1	9	9	9
Material	4	9	5	1	2	5
Labour	2	0	5	4	3	5
	9	6	2	5	5	9

Money spent in all ₹ 962559

7.

	7	**12**	**13**	**16**	**18**	**4**	**9**	**14**
	8	3	4	7	8	5	0	4
–	3	6	4	8	9	3	2	5
	4	6	9	8	9	1	7	9

∴ 46989179 must be subtracted from 83478504 to get 36489325

8. The population of city

			7	**14**	**11**	**14**	**10**	**9**	**10**
Current population	1	0	8	5	2	5	1	0	0
10 years ago	–	3	0	5	8	5	3	2	5
Popultion raised		7	7	9	3	9	7	7	5

The 77939775 population raised in 10 years.

9. In a year factory's toys

	3	**14**	**9**	**16**	**6**	**11**	**18**
Produced	4	5	0	6	7	2	8
Sold –	3	9	1	7	5	3	9
Unsold	0	5	8	9	1	8	9

So, 589189 toys were left unsold in the year.

10. Given, Total votes polled

		3	4	8	7	5	5	0	2
Ist candidate votes	–		9	8	2	3	2	8	5
IInd candidate votes		1	3	5	7	9	5	2	3

So, IIIrd candidate votes = Total – Ist – IInd

as 34875502 – 9823285 – 13579523

	2	**14**				**4**	**9**	**12**
	3	4	8	7	5	5	0	2
–		9	8	2	3	2	8	5
	2	5	0	5	2	2	1	7

		4	**9**	**14**	**11**	**11**	**11**	
	2	5	0	5	2	2	1	7
–	1	3	5	7	9	5	2	3
	1	1	4	7	2	6	9	4

So 11472694 votes were polled for IIIrd candidate in his favour.

Exercise 4.3

1. (a)

	5	1	4	3
×			2	8
	4	1	1	4	4
	1	0	2	8	6	0
	1	4	4	0	0	4

(b)

	7	4	0	8
×			3	8
	5	9	2	6	4
	2	2	2	2	4	0
	2	8	1	5	0	4

(c)

	3	4	0	0	9
×				9	6
	2	0	4	0	5	4
3	0	6	0	8	1	0
3	2	6	4	8	6	4

(d)

	4	7	9	9	
×			4	6	5
	2	3	9	9	5
	2	8	7	9	4	0
1	9	1	9	6	0	0
2	2	3	1	5	3	5

(e)
$$\begin{array}{r} 7098 \\ \times\ 879 \\ \hline 63882 \\ 496860 \\ 5678400 \\ \hline 6239142 \end{array}$$

(f)
$$\begin{array}{r} 70989 \\ \times\ 707 \\ \hline 496923 \\ 0000000 \\ 49692300 \\ \hline 50189223 \end{array}$$

(g)
$$\begin{array}{r} 4405 \\ \times\ 9043 \\ \hline 13215 \\ 176200 \\ 0000000 \\ 39645000 \\ \hline 39834415 \end{array}$$

(h)
$$\begin{array}{r} 81007 \\ \times\ 7653 \\ \hline 243021 \\ 4050350 \\ 48604200 \\ 567049000 \\ \hline 619946571 \end{array}$$

2. Quotient and remainder

(a)
$$\begin{array}{r|l} 68 & 89770 \\ \cline{2-2} & 68 \\ \cline{2-2} & 217 \\ & 204 \\ \cline{2-2} & 137 \\ & 136 \\ \cline{2-2} & 10 \\ & 0 \\ \cline{2-2} & 10 \end{array}\ 1320$$

Quotient = 1320
Remainder = 10

(b)
$$\begin{array}{r|l} 39 & 952342 \\ \cline{2-2} & 78 \\ \cline{2-2} & 172 \\ & 156 \\ \cline{2-2} & 163 \\ & 156 \\ \cline{2-2} & 74 \\ & 39 \\ \cline{2-2} & 352 \\ & 351 \\ \cline{2-2} & 1 \end{array}\ 24419$$

Quotient = 24419
Remainder = 1

(c)
$$
\begin{array}{r|l}
56 & 918974 \quad 16410 \\
\cline{2-2}
 & 56 \\
\cline{2-2}
 & 358 \\
 & 336 \\
\cline{2-2}
 & 229 \\
 & 224 \\
\cline{2-2}
 & 57 \\
 & 56 \\
\cline{2-2}
 & 14 \\
 & 0 \\
\cline{2-2}
 & 14 \\
\cline{2-2}
\end{array}
$$

Quotient = 16410
Remainder = 14

(d)
$$
\begin{array}{r|l}
83 & 2334567 \quad 28127 \\
\cline{2-2}
 & 166 \\
\cline{2-2}
 & 674 \\
 & 664 \\
\cline{2-2}
 & 105 \\
 & 83 \\
\cline{2-2}
 & 226 \\
 & 166 \\
\cline{2-2}
 & 607 \\
 & 581 \\
\cline{2-2}
 & 26 \\
\cline{2-2}
\end{array}
$$

Quotient = 28127
Remainder = 26

(e)
$$
\begin{array}{r|l}
45 & 74253802 \quad 1650084 \\
\cline{2-2}
 & 45 \\
\cline{2-2}
 & 292 \\
 & 270 \\
\cline{2-2}
 & 225 \\
 & 225 \\
\cline{2-2}
 & 03 \\
 & 0 \\
\cline{2-2}
 & 38 \\
 & 0 \\
\cline{2-2}
 & 380 \\
 & 360 \\
\cline{2-2}
 & 202 \\
 & 180 \\
\cline{2-2}
 & 22 \\
\cline{2-2}
\end{array}
$$

Quotient = 1650084
Remainder = 22

(f) 637) 907984 (1425
637
2709
2548
1618
1274
3444
3185
259

Quotient = 1425
Remainder = 259

(g) 358) 8984200 (25095
716
1824
1790
342
0
3420
3222
1980
1790
190

Quotient = 25095
emainde = 190

(h) 484) 38754231 (80070
3872
34
0
342
0
3423
3388
351
0
351

Quotient = 80070
Remainde = 351

(i) 801) 710060028 (886466
6408
6926
6408
5180
4806
3740
3204
5362
4806
5568
4806
762

Quotient = 886466
Remainder = 762

(j) 8400) 7880490 (938
75600
32049
25200
68490
67200
1290

Quotient = 938
Remainder = 1290

(k) 1008) 666224 (660
6048
6142
6048
944
0
944

Quotient = 660
Remainder = 944

(l) $5432\overline{)738213369}\,135900$

5432	
19501	
16296	
32053	
27160	
48933	Quotient = 135900
48888	Remainder = 4569
456	
0	
4569	

3. Simplify

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

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

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

$25 - 5 - 10 = 10$

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

$56 - 48 = 8$

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

$640 \div 160 = 4$

(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) $\{7 + (5 \times 3)\} - 12 + 6 \text{ of } 3$

$\{7 + 15\} - 12 + 6 \text{ of } 3$

$22 - 12 + 6 \text{ of } 3 = 22 - 12 + 18 = 28$

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

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

$23-[24-3\{4\}$

$23-[24-12]=23-12=11$

(k) $100-\{(7 \text{ of } 8+4)\div 5\}$

$100-\{(56+4)\div 5\}$

$100-\{60\div 5\}=100-\{12\}=88$

Exercise 4.4

1. There are 543 apples in a box.
   In 839 boxes apples are = 543 × 839

$$\begin{array}{r} 543 \\ \times\ 839 \\ \hline 4887 \\ 16290 \\ 434400 \\ \hline 455577 \end{array}$$

There are 455577 apples.

2. In 1 day 23515 breads are produced.
   Leap year = 366 days
   Thus in a leap year bread produced =

$$\begin{array}{r} 23515 \\ \times\ 366 \\ \hline 141090 \\ 1410900 \\ 7054500 \\ \hline 8606490 \end{array}$$

   Therefore, number of bread produced in a leap year = 8606490.

3. Iron nail packet in one box = 49527
   Number of boxes = 7515
   Thus iron nail packet in boxes are

$$
\begin{array}{r}
49527 \\
\times\ 7515 \\
\hline
247635 \\
495270 \\
24763500 \\
346689000 \\
\hline
372195405
\end{array}
$$

Therefore 372195405 iron nails packed in such boxes.

4. A cartoon hold = 144 oranges
   Number of Cartons = 15475
   Total number of oranges = 15475 × 144

$$
\begin{array}{r}
15475 \\
\times\ 144 \\
\hline
61900 \\
61900 \\
1547500 \\
\hline
2228400
\end{array}
$$

Therefore,2228400 number of oranges bought to the market.

5. In a newspaper
   No. of columns = 72
   No. of lines = 165
   1 line have = 36 letters
   Thus total letters = 72 × 165 × 36

$$
\begin{array}{r}
165 \\
\times\ 72 \\
\hline
330 \\
1155\times \\
\hline
11880
\end{array}
\qquad\qquad
\begin{array}{r}
11880 \\
\times\ 36 \\
\hline
71280 \\
356400 \\
\hline
427680
\end{array}
$$

Therefore, 427680 are the total number of letters.

6. An engine draws water in an hour = 68950 litre
   1 day it work = 12 hours
   1 week = 7 days
   Water draw in a week = $68950 \times 12 \times 7 = 68950 \times 84$

$$\begin{array}{r} 68950 \\ \times\ 84 \\ \hline 275800 \\ 5516000 \\ \hline 5791800 \end{array}$$

   Therefore 5791800 litre of water brawn in a week.

7. Product of two number = 133225
   One number = 365
   Another number = $133225 \div 365$

$$\begin{array}{r|l} 365 & 133225 \\ & 1095 \\ \hline & 2372 \\ & 2190 \\ \hline & 1825 \\ & 1825 \\ \hline & \times \\ \hline \end{array} \quad 365$$

   Another number is 365.

8. Total sum = ₹ 3916250
   Shared among = 325 persons
   Each one get = $3916250 \div 325$

$$\begin{array}{r|l} 325 & 3906250 \\ & 325 \\ \hline & 666 \\ & 650 \\ \hline & 162 \\ & 0 \\ \hline & 1625 \\ & 1625 \\ \hline & 00 \\ & 0 \\ \hline & \times \\ \hline \end{array} \quad 12050$$

   Ans. Each one get ₹12050

9. 1 bundle = 275 m pipe
No. of bundles in 287546m pipe = 287546 ÷ 275

$$
\begin{array}{r|l|r}
275 & 287546 & 1045 \\
 & 275 & \\
\hline
 & 125 & \\
 & 0 & \\
\hline
 & 1254 & \\
 & 1100 & \\
\hline
 & 1546 & \\
 & 1375 & \\
\hline
 & 171 &
\end{array}
$$

So, there were 1045 bundles and 171 m of pipe remain unpacked.

10. Number of books = 5346250
Arranged equally on = 1250 selves
Books on each shelf = 5346250 ÷ 1250

$$
\begin{array}{r|l|r}
1250 & 5346250 & 4277 \\
 & 5000 & \\
\hline
 & 3462 & \\
 & 2500 & \\
\hline
 & 9625 & \\
 & 8750 & \\
\hline
 & 8750 & \\
 & 8750 & \\
\hline
 & 0 &
\end{array}
$$

One shell contain 4277 books.

Test Paper

I.
1. addends
2. Sum
3. subtrahend
4. Minuend
5. difference
6. Successor of given number

II. 1. (b) Multiplication

2. (c) 74346583

7	4	2	8	6	5	8	3
			6	0	0	0	0
7	4	3	4	6	5	8	3

3. (a) 1575982

			5	**17**		
1	5	7	6	7	8	2
				8	0	0
1	5	7	5	9	8	2

4. (a) 2130495

2	**9**	**9**	**9**	**9**	**9**	**10**
3	0	0	0	0	0	0
	8	6	9	5	0	5
2	1	3	0	4	9	5

5. (a) $12 \times 12 - 5 \times 7 = 0$
$144 - 35 = 0$

6. (c) Dividend = (Divisor × Quotient + Reminder)

7. (c) Divisor

Activity Time

1. $9 \div 9 + 99 = 100$
2. $5 + 5 + 5 = 550$; $5 + 545 = 50$
3. (a) 11, 12, 1, 2 = 26
(b) 10, 9, 3, 4 = 26
(c) 8, 7, 6, 5 = 26
4. (a) 3'o clock
(b) 3:30 o' clock
(c) 9'o clock
(d) 9:30 clock

5 HCF and LCM

Exercise 5.1

1. (a) All the factors of 25 are = 1, 5, 25
   All the factors of 45 are = 1, 3, 9, 15, 45
   Common factors = 1, 5

   (b) All the factors of 24 are = 1, 2, 3, 4, 6, 8, 12, 24
   All the factors of 60 are = 1, 2, 3, 4, 5, 6, 10, 12, 15, 30, 60
   Common factors = 1, 2, 3, 4, 6, 12

   (c) All the factors of 77 are - 1, 7, 11, 77
   All the factors of 110 are = 1, 2, 5, 11, 22, 55, 110
   Common factors = 1, 11

   (d) All the factors of 75 are = 1, 3, 5, 15, 25, 75
   All the factors of 100 are = 1, 2, 4, 5, 10, 20, 25, 50, 100
   Common factors = 1, 5, 25

   (e) All the factors of 120 are = 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120
   All the factors of 160 are = 1, 2, 4, 5, 8, 10, 16, 20, 40, 80, 160
   Common factors = 1, 2, 4, 5, 8, 10, 20, 40

   (f) All the factors of 150 are = 1, 2, 3, 5, 6, 10, 15, 25, 30, 50, 75, 150
   All the factors of 250 are = 1, 2, 5, 10, 25, 50, 125, 250
   Common factors = 1, 2, 5, 10, 25, 50

   (g) All the factors of 300 are = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 25, 30, 50, 60, 75, 100, 150, 300
   All the factors of 400 are = 1, 2, 4, 5, 8, 10, 20, 25, 40, 80, 100, 200, 400
   Common factors = 1, 2, 4, 5, 10, 20, 25, 100

2. (a) 70 and 98

2	70
5	35
7	7
	1

2	98
7	49
7	7
	1

$70 = 2 \times 5 \times 7$
$98 = 2 \times 7 \times 7$
common factor = 2, 7

H.C.F. $= 2 \times 7 = 14$

(b) 176 and 96

2	176
11	88
2	8
2	4
2	2
	1

3	96
2	32
2	16
2	8
2	4
2	2
	1

$176 = 2 \times 2 \times 2 \times 2 \times 11$
$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$
common factor = 2, 2, 2, 2

H.C.F. $= 2 \times 2 \times 2 \times 2 = 16$

(c) 108 and 315

2	108
2	54
3	27
3	9
3	3
	1

3	315
5	105
3	21
7	7
	1

$108 = 2 \times 2 \times 3 \times 3 \times 3$
$315 = 7 \times 5 \times 3 \times 3$
Common factor = 3, 3

H.C.F. $= 3 \times 3 = 9$

(d) 315 and 120

3	315
5	105
3	21
7	7
	1

2	120
2	60
2	30
3	15
5	5
	1

$315 = 7 \times 5 \times 3 \times 3$
$120 = 3 \times 2 \times 5 \times 2 \times 2$
Common factor = 3, 5

H.C.F. $= 3 \times 5 = 15$

(e) 105 and 280

5	105
3	21
7	7
	1

2	280
2	140
7	70
2	10
5	5
	1

$105 = 5 \times 3 \times 7$
$280 = 2 \times 2 \times 7 \times 2 \times 5$

H.C.F. $= 7 \times 5 = 35$

(f) 175 and 225

5	175
5	35
7	7
	1

5	225
5	45
3	9
3	3
	1

$175 = 5 \times 5 \times 7$
$225 = 5 \times 5 \times 3 \times 3$
Common factors = 5, 5
H.C.F. $= 5 \times 5 = 25$

3. (a) 105, 85, 140

5	105
3	21
7	7
	1

5	85
17	17
	1

2	140
2	70
5	35
7	7
	1

$105 = 5 \times 3 \times 7$; $85 = 5 \times 17$; $140 = 5 \times 2 \times 2 \times 7$

H.C.F. $= 5$

(b) 116, 145, 290

2	116
2	58
29	29
	1

5	145
29	29
	1

29	290
2	10
5	5
	1

$116 = 2 \times 2 \times 29$; $145 = 5 \times 29$; $290 = 2 \times 5 \times 29$

H.C.F. $= 29$

(c) 45, 495, 990

3	45
5	15
3	3
	1

5	495
3	99
3	33
11	11
	1

11	990
3	90
3	30
2	10
5	5
	1

$45 = 3 \times 5 \times 3$; $495 = 5 \times 3 \times 3 \times 11$; $990 = 11 \times 3 \times 3 \times 2 \times 5$

H.C.F. $= 3 \times 3 \times 5 = 45$

(d) 128, 221, 470

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

3	221
7	77
11	11
	1

2	470
5	235
47	47
	1

$128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$; $221 = 3 \times 7 \times 11$; $470 = 2 \times 5 \times 47$

H.C.F. $= 1$

(e) 306, 408, 224

2	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

$306 = 2 \times 3 \times 3 \times 17$; $408 = 2 \times 2 \times 2 \times 3 \times 17$; $224 = 2 \times 2 \times 2 \times 2 \times 2 \times 7$

H.C.F. $= 2$

(f) 144, 576, 804

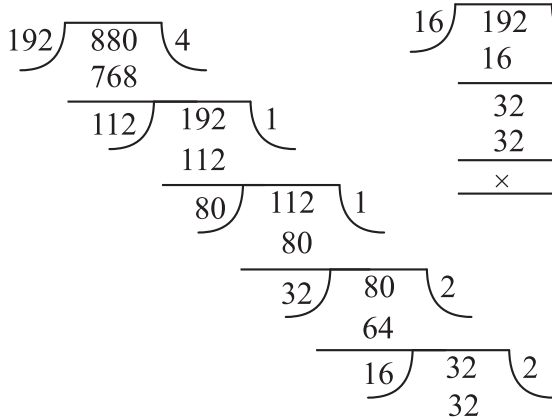
2	144
2	72
2	36
2	18
3	9
3	3
	1

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

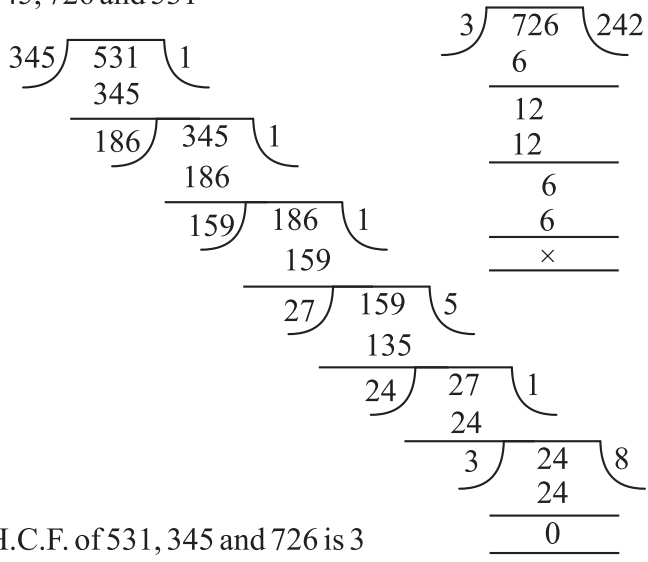
144=2×2×2×2×3×3; 576=2×2×2×2×2×2×3×3
804=2×2×3×67
H.C.F. = 2×2×3 = 12

4. (a) 192, 576 and 880



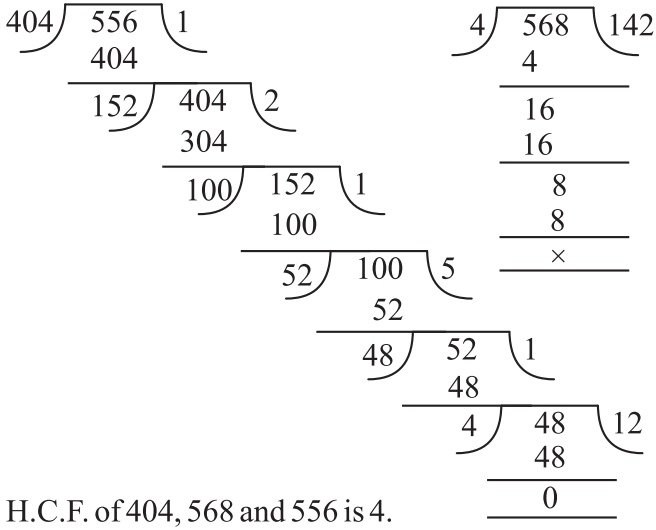
H.C.F. of 192, 576 and 880 is 16.

(b) 345, 726 and 531



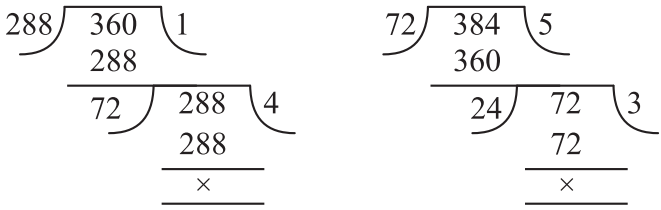
H.C.F. of 531, 345 and 726 is 3

(c) 404, 568 and 556



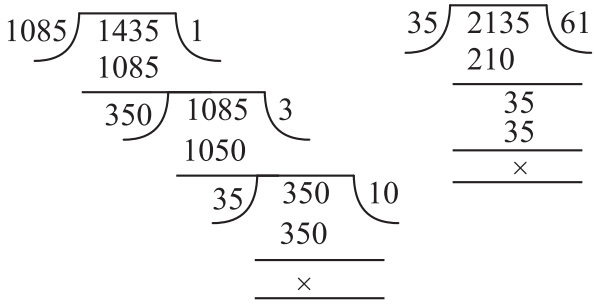
H.C.F. of 404, 568 and 556 is 4.

(d) 288, 360 and 384



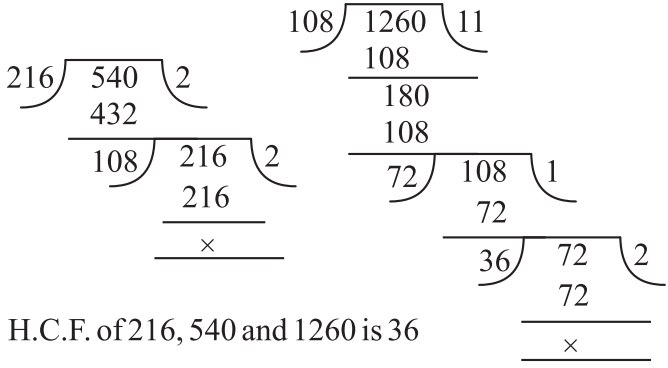
H.C.F. of 288, 360, 384 is 24.

(e) 1435, 1085 and 2135



H.C.F. of 1435, 1085 and 2135 is 35.

(f) 216, 540 and 1260



H.C.F. of 216, 540 and 1260 is 36

(g) 460, 920 and 1380

H.C.F. of 460, 920 and 1380 is 460

Exercise 5.2

1. (a) GCD (b) Smallest (c) Highest (d) Equal
   (e) co-prime
2. (a) 24, 36

2	24
2	12
2	6
3	3
	1

3	36
2	12
2	6
3	3
	1

$24 = 2 \times 2 \times 2 \times 3$
$36 = 2 \times 2 \times 3 \times 3$

L.C.M. $= 2 \times 2 \times 2 \times 3 \times 3 = 72$

(b) 54, 114

2	54
3	27
3	9
3	3
	1

2	114
3	57
19	19
	1

$54 = 2 \times 3 \times 3 \times 3$
$114 = 2 \times 3 \times 19$
L.C.M. $= 2 \times 3 \times 3 \times 3 \times 19 = 1026$

(c) 36, 21

2	36
2	18
3	9
3	3
	1

3	21
7	7
	1

$36 = 2 \times 2 \times 3 \times 3$
$21 = 3 \times 7$
L.C.M. $= 2 \times 2 \times 3 \times 3 \times 7 = 252$

(d) 15, 45 and 225

3	15
5	5
	1

3	45
3	15
5	5
	1

5	225
3	45
5	15
3	3
	1

$15 = 3 \times 5$; $45 = 3 \times 3 \times 5$; $225 = 5 \times 3 \times 5 \times 3$
L.C.M. $= 3 \times 3 \times 5 \times 5 = 225$

(e) 12, 16, 24 and 32

2	12
2	6
3	3
	1

2	16
2	8
2	4
2	2
	1

2	32
2	16
2	8
2	4
2	2
	1

$12=2\times2\times3$; $16=2\times2\times2\times2$; $32=2\times2\times2\times2\times2\times2$

L.C.M. $=2\times2\times2\times2\times2\times3=96$

(f) 18, 35, 60 and 100

2	18
3	9
3	3
	1

5	35
7	7
	1

2	100
2	50
5	25
5	5
	1

$18=3\times3\times2$; $35=5\times7$; $100=2\times2\times5\times5$

L.C.M. $=2\times2\times5\times5\times3\times3\times7=6300$

(g) 8, 12, 18 and 20

2	8
2	4
2	2
	1

3	12
2	4
2	2
	1

2	18
3	9
3	3
	1

2	20
2	10
5	5
	1

$8=2\times2\times2$; $12=3\times2\times2$; $18=2\times3\times3$; $20=2\times2\times5$

L.C.M. $=2\times2\times2\times3\times3\times5=360$

(h) 60, 84, 96 and 120

2	60
2	30
3	15
5	5
	1

2	84
2	42
3	21
7	7
	1

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

2	120
2	60
2	30
3	15
5	5
	1

$60 = 2\times2\times3\times5$; $84 = 2\times2\times3\times7$;

$96 = 2\times2\times2\times2\times2\times3$; $120 = 2\times2\times2\times3\times5$

L.C.M. $= 2\times2\times2\times2\times2\times3\times7\times5 = 3360$

(i) 66, 88, 110 and 77

11	66
3	6
2	2
	1

2	88
2	44
2	22
11	11
	1

7	77
11	11
	1

11	110
2	10
5	5
	1

$66 = 11\times3\times2$ $88 = 11\times2\times2\times2$

$77 = 7\times11$ $110 = 11\times2\times5$

L.C.M. $= 11\times2\times2\times2\times3\times7\times5 = 9240$

3. (a) 108, 228

2	108	228
2	54	114
3	27	57
19	9	19
3	9	1
3	3	1
	1	1

L.C.M. $= 2\times2\times3\times19\times3\times3 = 2052$

(b) 64, 80 and 36

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

L.C.M. = $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 3 \times 2 = 2880$

(c)

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

L.C.M. = $2\times2\times2\times2\times3\times2=96$

(d) 112, 252 and 99

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

L.C.M. = $2 \times 2 \times 2 \times 3 \times 7 \times 11 \times 3 \times 2 = 11088$

(e) 32, 56, 84

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

L.C.M. = $2 \times 2 \times 2 \times 7 \times 2 \times 2 \times 3 = 672$

(f) 78, 39 and 156

2	78	39	156
13	39	39	78
3	3	3	6
2	1	1	2
	1	1	1

L.C.M. = $2 \times 13 \times 3 \times 2 = 156$

(g) 110, 132 and 154

11	110	132	154
2	10	12	14
5	5	6	7
7	1	6	7
3	1	6	1
2	1	2	1
	1	1	1

L.C.M. = $11 \times 2 \times 5 \times 7 \times 3 \times 2 = 4620$

4. H.C.F. × L.C.M. = Product of two number

$28 \times 336 = 112 \times$ 2nd number

$$\frac{9408}{112} = \text{2nd number}$$

2nd number = 84

5. H.C.F. × L.C.M. = Product of two number

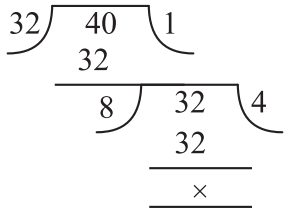
$96 \times 8 = 32 \times$ 2nd number

$$\frac{768}{32} = \text{2nd number}$$

2nd number = 24

6. L.C.M. of $(2\times3\times5)$ and $(3\times5\times7)$ is equal to $2\times3\times5\times7 = 210$

7. (a) 32 and 40



H.C.F. = 8

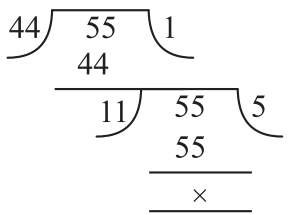
H.C.F. × L.C.M. = product of two numbers

$8 \times$ L.C.M. $= 32 \times 40$

$$\text{L.C.M.} = \frac{1280}{8}$$

L.C.M. = 160

(b) 55 and 44



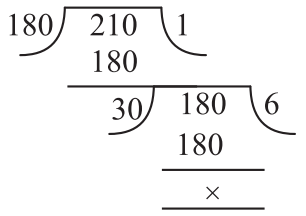
H.C.F. = 11

H.C.F. × L.C.M. = product of two numbers

$11 \times$ L.C.M. $= 55 \times 44$

L.C.M. = 220

(c) 210 and 180



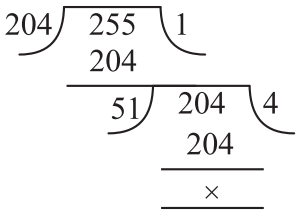
H.C.F. = 30

H.C.F. × L.C.M. = product of two number

$30 \times$ L.C.M. $= 210 \times 80$

L.C.M. = 1260

(d) 204 and 225



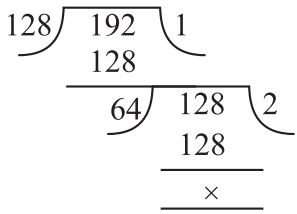
H.C.F. = 51

H.C.F. × L.C.M. = product of two numbers

$51 \times$ L.C.M. $= 204 \times 225$

$$\text{L.C.M.} = \frac{204 \times 255}{51} = 1020$$

(e) 128 and 192



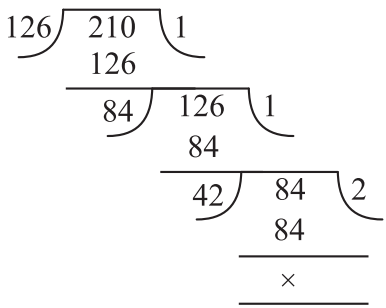
H.C.F. = 64

H.C.F. × L.C.M. = product of two numbers

$64 \times$ L.C.M. $= 128 \times 192$

L.C.M. =384

(f) 126 and 210



H.C.F. = 42

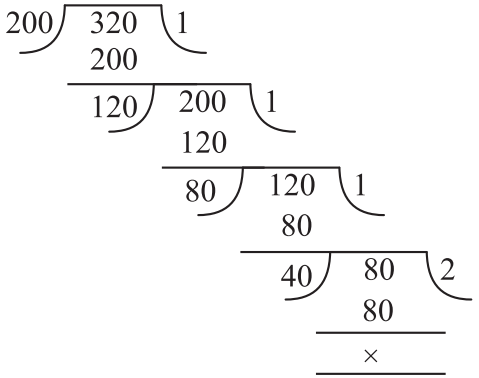
H.C.F. × L.C.M. = product of two numbers

$42 \times \text{L.C.M.} = 210 \times 126$

$\text{L.C.M.} = 630$

Exercise 5.3

1. L.C.M. of 200 and 320.



So, greatest number that will exactly divisible by 200 and 320 is 40.

2. L.C.M. of 8, 12, 15

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

$\text{L.C.M.} = 2 \times 2 \times 3 \times 2 \times 5 = 120$

and 3 is remainder in each case.

$= 120 + 3 = 123$

3. L.C.M. of 100, 140 and 180

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

$\text{L.C.M.} = 2 \times 2 \times 5 \times 5 \times 7 \times 9 = 6300$

So, 6300 is the smallest number that can exactly divisible by 100, 140 and 180.

4. H.C.F. × L.C.M. = product of two number

$96 \times 8 = 32 \times$ 2nd number

Second number = 24

5. Product of two numbers = H.C.F. × L.C.M.

$$216 = 3 \times \text{L.C.M.}$$

$$\frac{216}{3} = \text{L.C.M.}$$

$$72 = \text{L.C.M.}$$

6. We have to find L.C.M. of 4, 5, 7, 8 and 10.

2	4	5	7	8	10
2	2	5	7	4	5
5	1	5	7	2	5
	1	1	7	2	1

L.C.M. = 2 × 2 × 5 × 7 × 2 = 280 sec

So, all the bell ring together after 280 seconds.

7. Smallest 4-digit number is 1000

L.C.M. of numbers 12, 18, 21 and 28

2	12	18	21	28
2	6	9	21	14
7	3	9	21	7
3	3	9	3	1
	1	3	1	1

L.C.M. = 2 × 2 × 7 × 3 × 3 = 252

252) 1000 (3
756
244

Smallest number exactly divisible = 1000 + (252 – 244) = 1008

Remainder = 3

Thus, the smallest number of four-digit which leaves 3 as remainder to = 1008 + 3 = 1011 Ans.

8. 18m, 27m, 162m

18) 27 (1
18
9) 18 (2
18
×

9) 162 (18
9
72
72
×

H.C.F. = 9

The length great as possible is 9 and third length 162 is being divided.

$162 \div 9 = 18$

$\therefore$ Into 18 portion third rod will divided.

9. Three bell rang together at 7:30 am interval of 4, 5 and 6 minutes.

L.C.M.

2	4	5	6
	2	5	3

L.C.M. $= 2 \times 2 \times 5 \times 3 = 60$

As after 60 minutes the bell will rang as 60 min = 1 hour.

So at 8:30 am the bell with rang together.

10. C

Test Paper

1.

2	24	36	40
2	12	18	20
3	6	9	10
2	2	3	10
	1	3	5

L.C.M. $= 2 \times 2 \times 3 \times 2 \times 3 \times 5 = 360$

2. 25

3. H.C.F. of 60 and 72

$$60 \overline{)\ 72\ (\ 1} \quad 60$$
$$12 \overline{)\ 60\ (\ 5} \quad 60$$
$$\times$$

12 is H.C.F.

4. First number $= \dfrac{\text{H.C.F.} \times \text{L.C.M.}}{\text{Second number}}$

5. 1

6. Yes

H.C.F. × L.C.M. = product of number

$$\text{H.C.F.} = \frac{\text{product of number}}{\text{L.C.M.}}$$

$$\text{H.C.F.} = 1$$

coprime number.

7. Product = 40
   One number is 5 (first multiple of 5)
   Then other is = 40 ÷ 5
   8 is the another multiple.

$$5\overline{)\,40\;\;1}\quad 40\quad \times$$

Multiple Choice Questions (M.C.Q.)

1. H.C.F. of 75, 100, 150

$$75\overline{)\,100\;\;1}\quad 75\quad 25\overline{)\,75\;\;3}\quad 75\quad \times$$

$$25\overline{)\,150\;\;6}\quad 150\quad \times$$

Hence 25 (c) is H.C.F.

2. First number $= \dfrac{\text{H.C.F.} \times \text{L.C.M.}}{\text{Second number}}$

$$306 = 18 \times \text{L.C.M.}$$

$$\frac{306}{18} = \text{L.C.M.}$$

$$18\overline{)\,306\;\;17}\quad 18\quad 126\quad 126\quad \times$$

L.C.M. = 17 (b)

3. H.C.F. = 1 (d)
4. (b) twin number
5. (c) 90 and 100 i.e. 97
6. (a) 1
7.

2	20	30	50
5	10	15	25
	2	3	5

L.C.M. = 2×5×2×3×5 = 300 (a)

III. True/False

1. True
2. False
3. False
4. True

Activity Time

(a) LCM is 35 as 7 × 5
(b) HCF is 15 as 15 × 6 = 90
(c) HCF is 1 as co-prime
(d) HCF is 19 as 19 × 6 = 114

6 Multiplication And Division of Fractions

Exercise 6.1

1. (a) $\frac{3\times1}{4\times1}=\frac{3}{4}$, $\frac{3\times2}{4\times2}=\frac{6}{8}$, $\frac{3\times3}{4\times3}=\frac{9}{12}$, $\frac{3\times4}{4\times4}=\frac{12}{16}$

   $\frac{3}{4}$, $\frac{6}{8}$, $\frac{9}{12}$, $\frac{12}{16}$

   (b) $\frac{5}{6}$, $\frac{5\times2}{6\times2}=\frac{10}{12}$, $\frac{5\times3}{6\times3}=\frac{15}{18}$, $\frac{5\times4}{6\times4}=\frac{20}{24}$

   $\frac{5}{6}$, $\frac{10}{12}$, $\frac{15}{18}$, $\frac{20}{24}$

   (c) $\frac{1}{3}$, $\frac{1\times2}{3\times2}=\frac{2}{6}$, $\frac{1\times3}{3\times3}=\frac{3}{9}$, $\frac{1\times4}{3\times4}=\frac{4}{12}$

   $\frac{2}{6}$, $\frac{3}{9}$, $\frac{4}{12}$

   (d) $\frac{9\times2}{16\times2}=\frac{18}{32}$, $\frac{9\times3}{16\times3}=\frac{27}{48}$, $\frac{9\times4}{16\times4}=\frac{36}{64}$

   $\frac{18}{32}$, $\frac{27}{48}$, $\frac{36}{64}$

   (e) $\frac{7\times2}{11\times2}=\frac{14}{22}$, $\frac{7\times3}{11\times3}=\frac{21}{33}$, $\frac{7\times4}{11\times4}=\frac{28}{44}$

   $\frac{14}{22}$, $\frac{21}{33}$, $\frac{28}{44}$

2. (a) $\frac{20}{45}\div\frac{5}{5}=\frac{4}{9}$ as H.C.F. of 20 & 45 is 5.

   (b) $\frac{65\div13}{91\div13}=\frac{5}{7}$ H.C.F. is 13

   (c) $\frac{60\div12}{96\div12}=\frac{5}{8}$ H.C.F. is 12

(d) $\frac{21 \div 21}{147 \div 21} = \frac{1}{7}$ H.C.F. is 21

(e) $\frac{32 \div 16}{80 \div 16} = \frac{2}{5}$ H.C.F. is 16

3. (a) $\frac{14}{3}$

$3\overline{)14}\ 4$, 12, 2

$= 4\frac{2}{3}$

(b) $\frac{38}{7}$

$7\overline{)38}\ 5$, 35, 3

$= 5\frac{3}{7}$

(c) $\frac{31}{5}$

$5\overline{)31}\ 6$, 30, 1

$= 6\frac{1}{5}$

(d) $\frac{60}{11}$

$11\overline{)60}\ 5$, 55, 5

$= 5\frac{5}{11}$

(e) $\frac{87}{10}$

$10\overline{)87}\ 8$, 80, 7

$= 8\frac{7}{10}$

4. (a) $2\frac{1}{5} = \frac{(2 \times 5) + 1}{5} = \frac{10 + 1}{5} = \frac{11}{5}$

(b) $2\frac{2}{9} = \frac{(2 \times 9) + 2}{9} = \frac{18 + 2}{9} = \frac{20}{9}$

(c) $11\frac{7}{8} = \frac{(11 \times 8) + 7}{8} = \frac{88 + 7}{8} = \frac{95}{8}$

(d) $12\frac{7}{8} = \frac{(12 \times 8) + 7}{8} = \frac{96 + 7}{8} = \frac{103}{8}$

(e) $3\frac{7}{9} = \frac{(3\times 9)+7}{9} = \frac{27+7}{9} = \frac{34}{9}$

5. Denominators of fractions are 4, 12, 16, 20

L.C.M. of 4, 12, 16, 20 = 240

Then

$240 \div 4 = 60$

$240 \div 12 = 20$

$240 \div 16 = 15$

$240 \div 20 = 12$

$\frac{3\times 60}{4\times 60} = \frac{180}{240}$, $\frac{7\times 20}{12\times 20} = \frac{140}{240}$, $\frac{21\times 15}{16\times 15} = \frac{165}{240}$,

$\frac{9\times 12}{20\times 12} = \frac{108}{240}$

$\frac{180}{240}$, $\frac{140}{240}$, $\frac{165}{240}$, $\frac{108}{240}$,

(a) Smallest fraction is $\frac{108}{240}$ i.e. $\frac{9}{20}$

(b) Biggest fraction is $\frac{180}{240}$ i.e. $\frac{3}{4}$

6. (a) $4\frac{3}{5} + 2\frac{2}{5}$

$\frac{(4\times 5)+3}{5} + \frac{(2\times 5)+2}{5}$

$\frac{23}{5} + \frac{12}{5} = \frac{23+12}{5} = \frac{35}{5} = 7$

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

$\frac{(5\times 3)+2}{3} + \frac{(3\times 6)+1}{6} = \frac{17}{3} + \frac{19}{6}$

L.C.M. is 6

$6 \div 3 = 2$

$6 \div 6 = 1$

$$\frac{17\times2}{3\times2}+\frac{19\times1}{6\times1}=\frac{34}{6}+\frac{19}{6}=\frac{34+19}{6}=\frac{53}{6}\text{ or }8\frac{5}{6}$$

(c) $3\frac{4}{9}+2\frac{5}{9}$

$$\frac{(9\times3)+4}{9}+\frac{(2\times9)+5}{9}$$

$$\frac{31}{9}+\frac{23}{9}=\frac{31+23}{9}=\frac{54}{9}=6$$

(d) $3\frac{2}{3}+2\frac{5}{6}$

$$\frac{(3\times3)+2}{3}+\frac{(6\times2)+5}{6}=\frac{11}{3}+\frac{17}{6}$$

L.C.M. = 6

$$\frac{11\times2}{3\times2}+\frac{17\times1}{6\times1}=\frac{22}{6}+\frac{17}{6}=\frac{22+17}{6}=\frac{39}{6}=\frac{13}{2}=6\frac{1}{2}$$

7. (a) $4\frac{1}{4}-2\frac{1}{4}$

$$\frac{(4\times4)+1}{4}-\frac{(2\times4)+1}{4}$$

$$\frac{17}{4}-\frac{9}{4}=\frac{17-9}{4}=\frac{8}{4}=2$$

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

$$\frac{(4\times7)+2}{7}-\frac{(3\times7)+3}{7}$$

$$\frac{30}{7}-\frac{24}{7}=\frac{30-24}{7}=\frac{6}{7}$$

(c) $3\frac{2}{3}-2\frac{5}{6}$

$$\frac{(3\times3)+2}{3}-\frac{(2\times6)+5}{6}$$

$$\frac{11}{3}-\frac{17}{6}=\frac{11\times2}{3\times2}-\frac{17}{6} \qquad \text{(L.C.M.} = 6)$$

$$\frac{22}{6}-\frac{17}{6}=\frac{22-17}{6}=\frac{5}{6}$$

(d) $3\frac{5}{9}-2\frac{1}{6}$

$$\frac{(3\times9)+5}{9}-\frac{(2\times6)+1}{6}$$

$$\frac{32}{9}-\frac{13}{6}=\frac{32\times2}{9\times2}-\frac{13\times3}{6\times3} \qquad \text{(L.C.M.} = 18)$$

$$\frac{64}{18}-\frac{39}{18}=\frac{64-39}{18}=\frac{25}{18}=1\frac{7}{18}$$

Exercise 6.2

1. $\frac{2}{3}\times4 \Rightarrow \frac{2}{3}\times\frac{4}{1}=\frac{8}{3}=2\frac{2}{3}$
2. $\frac{15}{16}\times6=\frac{45}{8}=5\frac{5}{8}$
3. $\frac{16}{21}\times8 \Rightarrow \frac{16\times8}{21}=\frac{128}{21}=6\frac{2}{21}$
4. $16\frac{3}{4}\times18 \Rightarrow \frac{(16\times4)+3}{4}\times18$

   $$\frac{67\times18}{4}=\frac{603}{2}=301\frac{1}{2}$$

5. $15\frac{9}{25}\times5 \Rightarrow \frac{(15\times25)+9}{25}\times5$

   $$\frac{384\times5}{25}=\frac{384}{5}=76\frac{4}{5}$$

6. $\frac{9}{16}\times 12 \Rightarrow \frac{9\times 12}{16} = \frac{27}{4} = 6\frac{3}{4}$

7. $12\frac{2}{15}\times 20 \Rightarrow \frac{(15\times 12)+2}{15}\times 20$

$$\frac{182\times 20}{15} = \frac{728}{3} = 242\frac{2}{3}$$

8. $\frac{3}{4}\times\frac{7}{8} = \frac{3\times 7}{4\times 8} = \frac{21}{32}$

9. $1\frac{2}{3}\times\frac{3}{50} = \frac{(1\times 3)+2}{3}\times\frac{3}{50} = \frac{5\times 3}{3\times 50} = \frac{1}{10}$

10. $5\frac{3}{7}\times\frac{7}{19} \Rightarrow \frac{(7\times 5)+3}{7}\times\frac{7}{19} = \frac{38\times 7}{7\times 19} = 2$

11. $17\frac{2}{3}\times 4\frac{4}{5}$

$$\frac{(17\times 3)+2}{3}\times\frac{(4\times 5)+4}{5}$$

$$\frac{53}{3}\times\frac{24}{5} = \frac{53\times 24}{3\times 5} = \frac{424}{5} = 84\frac{4}{5}$$

12. $105\frac{7}{8}\times 14\frac{2}{3}$

$$\frac{(105\times 8)+7}{8}\times\frac{(14\times 3)+2}{3}$$

$$\frac{847\times 44}{8\times 3} = \frac{9317}{6} = 1552\frac{5}{6}$$

13. $19\frac{3}{4}\times 15\frac{3}{7}$

$$\frac{(19\times 4)+3}{4}\times\frac{(15\times 7)+3}{7}$$

$$\frac{79\times 108}{4\times 7} = \frac{2133}{7} = 304\frac{5}{7}$$

14. $21\frac{1}{7}\times 13\frac{1}{8}$

$$\frac{(21\times 7)+1}{7}\times\frac{(13\times 8)+1}{8}$$

$$\frac{148\times 105}{7\times 8}=\frac{555}{2}=277\frac{1}{2}$$

15. $\frac{4}{7}$ of $\frac{6}{11}\Rightarrow\frac{4\times 6}{7\times 11}=\frac{24}{77}$

16. $\frac{8}{11}$ of $\frac{44}{48}\Rightarrow\frac{8\times 44}{11\times 48}=\frac{2}{3}$

17. $\frac{5}{7}$ of $\frac{14}{15}\Rightarrow\frac{5\times 14}{7\times 15}=\frac{2}{3}$

18. 80 of $\frac{7}{10}\Rightarrow\frac{80\times 7}{10}=56$

19. 52 of $\frac{4}{13}\Rightarrow\frac{52\times 4}{13}=16$

20. 7 of $2\frac{1}{7}\Rightarrow\frac{7\times 15}{7}=15$

21. $\frac{1}{2}\times\frac{1}{4}\times\frac{1}{6}=\frac{1}{48}$

22. $\frac{6}{7}\times 15\times\frac{14}{3}\times\frac{8}{5}=96$

23. $\frac{3}{2}\times 4\frac{1}{2}\times\frac{3}{9}=\frac{3}{2}\times\frac{9}{2}\times\frac{3}{9}=\frac{9}{4}=2\frac{1}{4}$

24. $3\frac{1}{4}\times 5\frac{1}{3}\times\frac{12}{13}=\frac{13}{4}\times\frac{16}{3}\times\frac{12}{13}=16$

25. $\frac{7}{10}\times 30=21$

26. $\frac{7}{13}\times 156=84$

27. $\frac{5}{6}\times 180=150$

Exercise 6.3

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. $\frac{0}{4}=0$
12. $\frac{8}{7}$
13. $\frac{7}{8}$
14. 0

Exercise 6.4

Multiplication Inverse

1. $\frac{2}{7}=\frac{7}{2}$
2. $\frac{3}{8}=\frac{8}{3}$
3. $\frac{5}{6}=\frac{6}{5}$
4. $\frac{7}{12}=\frac{12}{7}$
5. $\frac{11}{4}=\frac{4}{11}$
6. $\frac{15}{8}=\frac{8}{15}$
7. $\frac{16}{9}=\frac{9}{16}$
8. $8=\frac{1}{8}$
9. $12=\frac{1}{12}$
10. $2\frac{1}{3}=\frac{7}{3}=\frac{3}{7}$
11. $3\frac{3}{4}=\frac{15}{4}=\frac{4}{15}$
12. $8\frac{1}{3}=\frac{25}{3}=\frac{3}{25}$

Exercise 6.5

1. $\frac{5}{7} \div \frac{1}{14} = \frac{5 \times 14}{7} = 10$
2. $\frac{4}{5} \div \frac{1}{10} = \frac{4 \times 10}{5} = 4 \times 2 = 8$
3. $\frac{2}{5} \div \frac{7}{10} = \frac{2}{5} \times \frac{10}{7} = \frac{2 \times 2}{7} = \frac{4}{7}$
4. $\frac{7}{15} \div \frac{14}{25} = \frac{7}{15} \times \frac{25}{14} = \frac{1 \times 5}{3 \times 2} = \frac{5}{6}$
5. $2\frac{4}{5} \div \frac{7}{9} = \frac{14}{5} \div \frac{7}{9} = \frac{14}{5} \times \frac{9}{7} = \frac{2 \times 9}{5} = \frac{18}{5} = 3\frac{3}{5}$
6. $2\frac{3}{4} \div \frac{9}{16} = \frac{11}{4} \div \frac{9}{16} = \frac{11}{4} \times \frac{16}{9} = \frac{11 \times 4}{9} = \frac{44}{9} = 4\frac{8}{9}$
7. $2\frac{7}{9} \div \frac{10}{21} = \frac{25}{9} \div \frac{10}{21} = \frac{25}{9} \times \frac{21}{10} = \frac{5 \times 7}{3 \times 2} = \frac{35}{6} = 5\frac{5}{6}$
8. $\frac{8}{15} \div 1\frac{7}{9} = \frac{8}{15} \div \frac{16}{9} = \frac{8}{15} \times \frac{9}{16} = \frac{1 \times 3}{5 \times 2} = \frac{3}{10}$
9. $\frac{16}{25} \div 2\frac{6}{7} = \frac{16}{25} \div \frac{20}{7} = \frac{16}{25} \times \frac{7}{20} = \frac{4 \times 7}{25 \times 5} = \frac{28}{125}$
10. $2\frac{2}{3} \div 1\frac{1}{6} = \frac{8}{3} \div \frac{7}{6} = \frac{8}{3} \times \frac{6}{7} = \frac{8 \times 2}{7} = \frac{16}{7} = 2\frac{2}{7}$
11. $\frac{15}{32} \div 4\frac{3}{8} = \frac{15}{32} \div \frac{35}{8} = \frac{15}{32} \times \frac{8}{35} = \frac{3 \times 1}{4 \times 7} = \frac{3}{28}$
12. $\frac{7}{12} \div 2\frac{4}{5} = \frac{7}{12} \div \frac{14}{5} = \frac{7}{12} \times \frac{5}{14} = \frac{5 \times 1}{12 \times 2} = \frac{5}{24}$
13. $\frac{1}{2} \div 2 = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
14. $\frac{1}{8} \div 6 = \frac{1}{8} \times \frac{1}{6} = \frac{1}{48}$
15. $1\frac{1}{2} \div 4 = \frac{3}{2} \div 4 = \frac{3}{2} \times \frac{1}{4} = \frac{3}{8}$

16. $1\frac{3}{4} \div 6 = \frac{7}{4} \div 6 = \frac{7}{4} \times \frac{1}{6} = \frac{7}{24}$

17. $3\frac{3}{8} \div 9 = \frac{27}{8} \div 9 = \frac{27}{8} \times \frac{1}{9} = \frac{3 \times 1}{8} = \frac{3}{8}$

18. $4\frac{2}{3} \div 7 = \frac{14}{3} \div 7 = \frac{14}{3} \times \frac{1}{7} = \frac{2 \times 1}{3 \times 1} = \frac{2}{3}$

19. $2\frac{1}{7} \div 10 = \frac{15}{7} \div 10 = \frac{15}{7} \times \frac{1}{10} = \frac{3 \times 1}{7 \times 2} = \frac{3}{14}$

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

21. $18 \div \frac{3}{4} = 18 \times \frac{4}{3} = 4 \times 6 = 24$

22. $60 \div \frac{15}{8} = 60 \times \frac{8}{15} = 4 \times 8 = 32$

23. $48 \div \frac{12}{7} = 48 \times \frac{7}{12} = 4 \times 7 = 28$

24. $15 \div 2\frac{1}{2} = 15 \div \frac{5}{2} = 15 \times \frac{2}{5} = 3 \times 2 = 6$

25. $8 \div 3\frac{3}{7} = 8 \div \frac{24}{7} = 8 \times \frac{7}{24} = \frac{7}{3}$ or $2\frac{1}{3}$

26. $16 \div 2\frac{2}{15} = 16 \div \frac{32}{15} = \frac{16 \times 15}{32} = \frac{15}{2}$ or $7\frac{1}{2}$

Exercise 6.6

1. (a) $\frac{15}{29} \div 1 = \frac{15}{29} \times 1 = \frac{15}{29}$

   (b) 1

   (c) $3\frac{1}{3} \div \frac{10}{3} = \frac{10}{3} \div \frac{10}{3} = 1$

   (d) $0 \div \frac{5}{13} = \frac{0 \times 13}{5} \div \frac{0}{5} = 0$

(e) $0 \div 0 = 0$

(f) $0 \div \frac{19}{37} = 0$

(g) 1

(h) $\frac{7}{15} \div \frac{7}{15} = 1$

(i) $5\frac{7}{9} \div 5\frac{7}{9} = 1$

(j) $\frac{4}{7} \div 1 = \frac{4}{7}$

(k) $0 \div 1 = 0$

(l) $1 \div 0 = \infty$

2. (a) $3\frac{1}{5} \div 0 = 0 \neq 3\frac{1}{5}$ (F)

(b) $5\frac{1}{3} \div 1 = 5\frac{1}{3}$ (T)

(c) $0 \div 1\frac{4}{5} = 0$ (F)

(d) $3\frac{1}{4} \div 3\frac{1}{4} = 1 \neq 0$ (F)

(e) $0 \div \frac{8}{15} = 0 \neq \frac{8}{15}$ (F)

(f) $0 \div \frac{8}{7} = 0$ (T)

(g) $\frac{8}{5} \div \frac{8}{5} = 1$ (T)

(h) $\frac{3}{7} \div 1 = \frac{3}{7} \neq 0$ (F)

Exercise 6.7

1. Weight of 1 packet = $\frac{1}{2}$ kg

   Weight of 12 packets = $12 \times \frac{1}{2} = 6$ kg

2. Number of ice-cream cups = 3
   She divided among 4 persons

So each child will get = $\frac{3}{4}$

3. Ribbon length = $7\frac{1}{2}$ m

She cut into = $2\frac{1}{2}$ m length

So $7\frac{1}{2} \div 2\frac{1}{2} = \frac{15}{2} \div \frac{5}{2} = \frac{15}{2} \times \frac{2}{5} = 3$ pieces

4. Read part of book = $\frac{3}{4}$

Pages left = 16 pages

Unread part of book = $1 - \frac{3}{4} = \frac{4-3}{4} = \frac{1}{4}$

Pages left = 16

Pages in book = $16 \div \frac{1}{4} = 16 \times 4 = 64$

So, there are 64 pages in the book.

5. Aman has ₹ 250

$\frac{1}{2}$ of money to eldest brother

i.e. $\frac{1}{2} \times 250 = ₹125$

Remaining money = $250 - 125 = ₹125$

To younger son = $\frac{1}{5} \times 125 =$ ₹25

Remaining money = $125 - 25 = ₹100$

He gave ₹ 100 to his daughter.

6. 1 kg sugar cost = $₹18\frac{1}{2}$ or ₹ $\frac{37}{2}$

$3\frac{1}{4}$ kg of sugar cost $= 3\frac{1}{4} of \frac{37}{2}$

$= \frac{13}{4} \times \frac{37}{2} = \frac{481}{8} = 60\frac{1}{8}$

7. 1 m cloth cost = ₹20

$6\frac{1}{2}$ m cloth cost $= 20 \times \frac{13}{2} = 130$

The cloth cost ₹ 130

8. Product $= 7\frac{1}{3} = \frac{22}{3}$

One is $= 1\frac{5}{6} = \frac{11}{6}$

Other number $\frac{22}{3} \div \frac{11}{6} = \frac{22}{3} \times \frac{6}{11} = 2 \times 2 = 4$

Other number = 4

9. Let he has ₹1 in the beginning

Money spent in one shop $= \frac{1}{2}$ of ₹ 1 $=$ ₹ $\frac{1}{2}$

Remaining money $= 1 - \frac{1}{2}$ $=$ ₹ $\frac{1}{2}$

Money spent on auto rickshaw fare $= \frac{1}{2}$ of $\frac{1}{3} =$ ₹ $\frac{1}{6}$

Remaining money $= \frac{1}{2} - \frac{1}{6} = \frac{3-1}{6} = \frac{2}{6} =$ ₹ $\frac{1}{3}$

Total money $= 40 \times \frac{1}{3} = 40 \times 3 =$ ₹120

10. A parking hold = 150 cars

$\frac{3}{5}$ of parking is full

So, $\frac{3}{5} \times 150 = 90$

More cars that can be kept = $150 - 90 = 60$

So, 60 cars can be kept at that time.

Test Paper

I. 1. 2 2. $\frac{1}{8}$ 3. 4 4. $\frac{1}{8}$

5. $\frac{1}{18}$ 6. Its value decreases

7. 2 dozen

$2 \times 12 = 24$

6 were bad = $24 - 6 = 18$

Fraction for good = $\frac{18}{24} = \frac{3}{4}$

8. (b) as its denominator is zero.

II. 1. (c) 0 2. (c) like fraction

3. (a) unit fraction 4. (b) 2

5. (a) proper fraction 6. (a)

III. 1. False 2. True 3. False 4. False

5. False

Activity Time

1. 1 picture take $\frac{1}{3}$ of an hour

7 picture will take = $7 \times \frac{1}{3}$ hour

$= \frac{7}{3} \times 60 = 140$

1 hour and 40 minutes

2. In 1 hour the man walks $= 3\frac{3}{4}$ km $= \frac{15}{4}$ km

In $2\frac{3}{5}$ hours he walks $= \frac{13}{5} \times \frac{15}{4}$

$= \frac{39}{4} = 9\frac{3}{4}$ km

3. 6 bottles hold $= 4\frac{4}{5}$ litres of liquid $= \frac{24}{5}$ litres

1 bottle hold $= \frac{24}{5} \div 6 = \frac{24}{5} \times \frac{1}{6} = \frac{4}{5}$ litres

4. Among 44 pupils in class $\frac{3}{4}$ are girls

So, $\frac{3}{4} \times 44 = 33$ are girls.

7 Decimals

Exercise 7.1

1. (a) 48.07 — integral part = 48; decimal part = 0.07
   (b) 5.327 — integral part = 5, decimal part = 0.327
   (c) 753.8 — integral part = 753; decimal part = 0.8
   (d) 2345.879 — integral part = 2345; decimal part = 0.879
2. (a) $78.07 = 70 + 8 + 0.07$
   (b) $142.02 = 100 + 40 + 2 + 0.02$
   (c) $204.002 = 200 + 4 + 0.002$
   (d) $481.29 = 400 + 80 + 1 + .2 + 0.09$
   (e) $815.016 = 800 + 10 + 5 + .01 + 0.006$
   (f) $989.988 = 900 + 80 + 9 + .9 + .08 + .008$
   (g) $615.615 = 600 + 10 + 5 + .6 + 0.01 + .005$
   (h) $2145.038 = 2000 + 100 + 40 + 5 + .03 + .008$
3. (a) 5 tens + 2 ones + 1 tenth + 3 hundredths

$$50 + 2 + \frac{1}{10} + \frac{3}{100} = 52.13$$

   (b) 5 hundreds + 7 tenths + 4 thousandths

$$500 + \frac{7}{10} + \frac{4}{1000} = 500.704$$

   (c) 2 hundreds + 5 ones + 6 hundreths + 4 thousandths

$$200 + 5 + \frac{6}{100} + \frac{4}{1000} = 205.064$$

   (d) 7 hundreds + 3 tens + 1 ones + 4 thousandths

$$700 + 30 + 1 + \frac{4}{1000} = 731.004$$

   (e) 4 hundreds + 1 ten + 2 ones + 5 tenths + 9 thousandths

$$400 + 10 + 2 + \frac{5}{10} + \frac{9}{1000} = 412.509$$

4. (a) $\frac{4}{10} = 0.4$ (b) $\frac{15}{100} = 0.15$

(c) $\frac{37}{1000} = 0.037$ (d) $\frac{105}{100} = 1.05$

(e) $\frac{8}{1000} = 0.008$ (f) $\frac{245}{1000} = 0.245$

(g) $\frac{12345}{1000} = 12.345$ (h) $\frac{145798}{10000} = 14.5798$

5. (a) $0.7 = \frac{7}{10}$ (b) $0.05 = \frac{5}{100}$

(c) $1.7 = \frac{17}{10}$ (d) $3.75 = \frac{375}{100}$

(e) $12.275 = \frac{12275}{1000}$ (f) $18.005 = \frac{18005}{1000}$

(g) $17.375 = \frac{17375}{1000}$ (h) $17.25 = \frac{1725}{100}$

Exercise 7.2

1. (a) 3.9, 17.3

The highest number of digit in the decimal place = 1

3.9 = 3.9; 17.3 = 17.3

It is a pairs of like decimal

(b) 9.12, 6.72

The highest number of digit in the decimal place = 2

9.12 = 9.12; 6.72 = 6.72

It is a pair of like decimal.

(c) 79.9, 7.99

The highest number of digit in the decimal place = 2

79.9 = 79.90; 7.99 = 7.99

It is not a pair of like decimal, so it is unlike decimal.

(d) 3.004, 3.40

The highest number of digit in the decimal place = 3

3.004 = 3.004; 3.40 = 3.400

It is not a pair of like decimal so it is an unlike decimal.

(e) 123.257, 23.028

The highest number of digit in the decimal place = 3

123.257 = 123.257; 23.028 = 23.028

It is a pair of like decimal.

2. (a) It is unlike decimal and so it is wrong.

(b) It is like decimal, so it is wrong.

(c) It is like decimal, so it is wrong.

(d) It is like decimal so it is right.

(e) It is unlike decimal so it is wrong.

3. (a) 0.2, 3.02, 1.5

The highest number of digit in the decimal place = 2

0.2 = 0.20; 3.02 = 3.02; 1.5 = 1.50

(b) 1.06, 3.3, 5.620

The highest number of digit in the decimal places = 3

1.06 = 1.060; 3.3 = 3.300; 5.620 = 5.620

(c) 3.654, 3.0, 4.9

The highest number of digit in the decimal place = 3

3.654 = 3.654; 3.0 = 3.000; 4.9 = 4.900

(d) 5.006; 0.03; 0.3

The highest number of digit in the decimal place = 3

5.006 = 5.006; 0.03 = 0.030; 0.3 = 0.300

(e) 18.025, 100.03, 150.7

The highest number of digit in the decimal place = 3

18.002 = 18.002; 100.03 = 100.030; 150.7 = 150.700

(f) 2.198, 18.1415, 62.07

The highest number of digit in the decimal place = 4

2.198 = 2.1980; 18.1415=18.1415; 62.07=62.0700

4. (a) $0.83 > 0.38$ (b) $0.52 < 0.8$

(c) $0.350 < 0.512$ (d) $0.800 > 0.125$

(e) $0.314 > 0.110$ (f) $0.09 < 0.9$

(g) $0.1551 < 0.2000$ (h) $4.20 > 3.12$

(i) $8.13 < 81.30$

5. (a) 2.34, 2.609, 3.1, 2.05

$2.05 < 2.34 < 2.609 < 3.1$

Ascending order = 2.05, 2.34, 2.609, 3.1

(b) 1.01, 0.101, 1.001, 0.010
0.010 < 0.101 < 1.001 < 1.01
= 0.010, 0.101, 1.001, 1.01

(c) 3.33, 3.30, 3.03, 3.003
3.003 < 3.03 < 3.30 < 3.33
3.003, 3.03, 3.30, 3.33

(d) 88.77, 88.8, 66.5, 66.36
66.36 < 66.5 < 88.77 < 88.8
66.36, 66.5, 88.77, 88.8

6. (a) 16.03, 19.9, 7.898
19.9 > 16.03 > 7.898
19.9, 16.03, 7.898

(b) 3.004, 5.33, 8.7
8.7 > 5.33 > 3.004
= 8.7, 5.33, 3.004

(c) 1.82, 2.32, 2.81, 3.52
3.52 > 2.81 > 2.32 > 1.82
3.52, 2.81, 2.32, 1.82

(d) 14.1, 15.25, 5.25, 10.51
15.25 > 14.1 > 10.51 > 5.25
15.25, 14.1, 10.51, 5.25

Exercise 7.3

1. (a) 8.3 + 9.7 + 12.5

$$\begin{array}{r} 8.3 \\ 9.7 \\ +12.5 \\ \hline 30.5 \end{array}$$

Ans. 30.5

(b) 8.06 + 14.87 + 26.84

$$\begin{array}{r} 8.06 \\ 14.87 \\ +26.84 \\ \hline 49.77 \end{array}$$

Ans. 49.77

(c) 103.74 + 6.64 + 23.44

Ans. 133.82

```
  103.74
    6.64
+ 23.44
--------
  133.82
```

(d) 5.475 + 14.574 + 25.888

Ans. 45.937

```
   5.475
  14.574
+ 25.888
--------
  45.937
```

(e) 0.4345 + 0.0054 + 0.105

Ans. 0.5449

```
  0.4345
  0.0054
+ 0.1050
--------
  0.5449
```

(f) 91.52 + 13.34 + 1.8532

Ans. 106.7132

```
  91.5200
  13.3400
+  1.8532
----------
 106.7132
```

2. (a) 14.04, 21.88, 6.82, 19.9

```
  14.04
  21.88
   6.82
+ 19.90
--------
  62.64
```
Ans. : 62.64

(b) 85.405, 66.666, 29.18, 0.8964

```
  85.4050
  66.6660
  29.1800
+ 00.8964
----------
 182.1474
```
Ans. : 182.1474

(c) 9.0004, 0.50001, 0.31, 0.9143

$$\begin{array}{r} 9.00040 \\ 0.50001 \\ 0.31000 \\ +\ 0.91430 \\ \hline 10.72471 \end{array}$$ Ans. : 10.72471

(d) 195.92, 514.4, 940.1, 431.92

$$\begin{array}{r} 195.92 \\ 514.40 \\ 940.10 \\ +\ 431.92 \\ \hline 2082.34 \end{array}$$ Ans. : 2082.34

(e) 1.4295, 2.014, 1.4914, 19.432

$$\begin{array}{r} 1.4295 \\ 2.0140 \\ 1.4914 \\ +\ 19.4320 \\ \hline 24.3669 \end{array}$$ Ans. : 24.3669

(f) 7.8314, 8.0053, 1837.31, 14.3

$$\begin{array}{r} 7.8314 \\ 8.0053 \\ 1837.3100 \\ +\ 14.3000 \\ \hline 1867.4467 \end{array}$$ Ans. 1867.4467

3. (a) 45.742 – 28.575

$$\begin{array}{r} 45.742 \\ -\ 28.575 \\ \hline 17.167 \end{array}$$ Ans. 17.167

(b) 62.734 – 47.587

$$\begin{array}{r} 62.734 \\ -\ 47.587 \\ \hline 15.147 \end{array}$$ Ans. : 15.147

(c) 16.425 – 9.768

$$\begin{array}{r} 16.425 \\ -\ 9.768 \\ \hline 6.657 \end{array}$$ Ans. : 6.657

(d) 35.643 – 28.786

$$\begin{array}{r} 35.643 \\ -\ 28.786 \\ \hline 6.857 \end{array}$$ Ans. : 6.857

(e) 85.064 – 36.279

$$\begin{array}{r} 85.064 \\ -\ 36.279 \\ \hline 48.785 \end{array}$$ Ans. : 48.785

(f) 90.205 – 74.638

$$\begin{array}{r} 90.205 \\ -\ 74.638 \\ \hline 15.567 \end{array}$$ Ans. : 15.567

5. Total of two numbers = 50.035
One number is = 25.45
Another number = 50.035 – 25.45

$$\begin{array}{r} 50.035 \\ -\ 25.450 \\ \hline 24.585 \end{array}$$ Ans. : 24.585

6. Sum of 83.121 and 7.8043

$$\begin{array}{r} 83.1210 \\ +\ 7.8043 \\ \hline 90.9253 \end{array}$$

Subtraction 7.005 from 90.9253

$$\begin{array}{r} 90.9253 \\ -\ 7.0050 \\ \hline 83.9203 \end{array}$$

7. Difference of 15.1508 and 9.325

$$\begin{array}{r} 15.1508 \\ -\ 9.3250 \\ \hline 5.8258 \end{array}$$

Add 32.8040 to 5.8258

$$\begin{array}{r} 32.8040 \\ +\ 5.8258 \\ \hline 38.6298 \end{array}$$

At last we get 38.6298

8.
$$\begin{array}{r} 67.9143 \\ -\ 16.0635 \\ \hline 51.8508 \end{array}$$

So, 51.8508 should be subtracted from 67.9143 to get 16.0635

9.
$$\begin{array}{r} 50.000 \\ -\ 29.345 \\ \hline 20.655 \end{array}$$

So, 20.655 should be added to 29.345 to get 50

Test Paper

I. Mental Maths

1. 65.03 — Sixty five point zero three
2. Six hundred point nine zero eight — 600.908
3. $\frac{490}{100} = 4.90$
4. $0.006 = \frac{6}{1000}$
5. $217.1394 = 200 + 10 + 7 + \frac{1}{10} + \frac{3}{100} + \frac{9}{1000} + \frac{4}{10000}$

6. We can make unlike fraction to like fraction by adding as many zero to make the decimal part equal in digits.

7. $486.3\mathbf{2} = \frac{2}{100}$ (place value of bold digit)

8. (a) 100.1, 10.1 — Like
   (b) 33.03, 330.3 — Unlike

9. (a) $27.32 < 35.27$ (b) $9.93 > 9.39$
   (c) $76.27 = 76.27$

II. 1. (a) $5.5 + 5.55 + 5.555$

$$\begin{array}{r} 5.500 \\ +\ 5.550 \\ +\ \ 5.555 \\ \hline 16.605 \end{array}$$

(c) 16.605

2. $3 + \frac{7}{10} + \frac{9}{100} = 3.79$ (a) 3. $\frac{314}{100} = 3.14(b)$

4. $\frac{18}{10000} = 0.0018(a)$

5. 4.026 — Four and twenty six thousandths

6. $\frac{0.1}{0.10} + \frac{0.01}{0.1} = 1.1(c)$

Activity Time

1. To make 1

0.1	0.4	0.5	0.3	0.8
0.5	0.9	0.7	0.6	0.2

i.e.

$0.9 + 0.1$ $0.8 + 0.2$ $0.5 + 0.5$
$0.4 + 0.6$ $0.7 + 0.3$

2. (a) City D, 45.6°C (b) City F, 10.5°C
   (c) D–F, $45.6 - 10.5 = 35.1$°C
   (d) C = 28.7° lower by
   $45.6 - 28.7 = 16.9$°C

(e) $36.6°C - 10.5°C = 26.1°C$
The difference is of 26.1°C

3. To make 10

1.6	9.7	3.5	4.8	2.6
8.4	6.5	7.4	0.3	5.2

i.e.

1.6 + 8.4	9.7 + 0.3	6.5 + 3.5
4.8 + 5.2	7.4 + 2.6	

8 Multiplication and Division of Decimals

Exercise 8.1

1. (a)
$$\begin{array}{r} 16.058 \\ \times\ 4 \\ \hline 64.232 \end{array}$$

(b)
$$\begin{array}{r} 6.014 \\ \times\ 5 \\ \hline 30.070 \end{array}$$

(c)
$$\begin{array}{r} 9.1435 \\ \times\ 8 \\ \hline 73.1480 \end{array}$$

(d)
$$\begin{array}{r} 705.325 \\ \times\ 3 \\ \hline 2115.975 \end{array}$$

(e)
$$\begin{array}{r} 204.763 \\ \times\ 9 \\ \hline 1847.867 \end{array}$$

(f)
$$\begin{array}{r} 105.895 \\ \times\ 7 \\ \hline 741.265 \end{array}$$

(g)
$$\begin{array}{r} 32.5 \\ \times\ 24 \\ \hline 1300 \\ 6500 \\ \hline 780.0 \end{array}$$

(h)
$$\begin{array}{r} 58.9 \\ \times\ 37 \\ \hline 4123 \\ 17670 \\ \hline 2179.3 \end{array}$$

(i)
$$\begin{array}{r} 7.28 \\ \times\ 13 \\ \hline 2184 \\ 7280 \\ \hline 94.64 \end{array}$$

(j)
$$\begin{array}{r} 29.35 \\ \times\ 18 \\ \hline 23480 \\ 29350 \\ \hline 628.3 \end{array}$$

2. (a)
$$\begin{array}{r} 5.7 \\ \times\ 4 \\ \hline 22.8 \end{array}$$

(b)
$$\begin{array}{r} 5.05 \\ \times\ 12 \\ \hline 1010 \\ 5050 \\ \hline 60.60 \end{array}$$

(c)
$$\begin{array}{r} 3.003 \\ \times\ 135 \\ \hline 15015 \\ 90090 \\ 300300 \\ \hline 405.405 \end{array}$$

(d)
$$\begin{array}{r} 3.56 \\ \times\ 138 \\ \hline 2848 \\ 10680 \\ 35600 \\ \hline 491.28 \end{array}$$

(e)
$$\begin{array}{r} 84.831 \\ \times\ 27 \\ \hline 593817 \\ 1696620 \\ \hline 2290.437 \end{array}$$

(f)
$$\begin{array}{r} 82.45 \\ \times\ 92 \\ \hline 16490 \\ 742050 \\ \hline 7584.40 \end{array}$$

(g) $17.801 \times 100 = 178.01$

(h) $8.1123 \times 1000 = 8112.3$

(i)
$$\begin{array}{r} 219.52 \\ \times\ 6000 \\ \hline 0000000 \\ 131712000 \\ \hline 131712.000 \end{array}$$

(j)
$$\begin{array}{r} 203.843 \\ \times\ 20 \\ \hline 000000 \\ 4076860 \\ \hline 4076.860 \end{array}$$

3. (a) $0.4 \times 0.3 = 4 \times 3 = 12$

$0.4 \times 0.3 = 0.12$

(b)
$$\begin{array}{r} 815 \\ \times\ 3 \\ \hline 2445 \end{array}$$
$8.15 \times 0.3 = 2.445$

(c)
$$\begin{array}{r} 612 \\ \times\ 35 \\ \hline 3060 \\ 18360 \\ \hline 21420 \end{array}$$
then $6.12 \times 3.5 = 21.420$

(d)
$$\begin{array}{r} 7134 \\ \times\ 32 \\ \hline 14268 \\ 214020 \\ \hline 228288 \end{array}$$
then $7.134 \times 0.32 = 2.28288$

(e)
$$\begin{array}{r} 112 \\ \times\ 43 \\ \hline 336 \\ 4480 \\ \hline 4816 \end{array}$$
$11.2 \times 4.3 = 48.16$

(f)
$$\begin{array}{r} 1712 \\ \times\ 8 \\ \hline 13696 \end{array}$$
$17.12 \times 0.08 = 1.3696$

(g)
$$\begin{array}{r} 236 \\ \times\ 14 \\ \hline 944 \\ 2360 \\ \hline 3304 \end{array}$$
$0.236 \times 1.4 = 0.3304$

(h)
$$\begin{array}{r} 1137 \\ \times\ 28 \\ \hline 9096 \\ 22740 \\ \hline 31836 \end{array}$$
$1.137 \times 2.8 = 3.1836$

(i)
$$\begin{array}{r} 24725 \\ \times\ 59 \\ \hline 222525 \\ 1236250 \\ \hline 1458775 \end{array}$$
$24.725 \times 5.9 = 145.8775$

(j)
$$\begin{array}{r} 4375 \\ \times\ 349 \\ \hline 39375 \\ 175000 \\ 1312500 \\ \hline 1526875 \end{array}$$
$43.75 \times 3.49 = 152.6875$

Exercise 8.2

1. (a) $0.2 \times 0.2 = 0.04$ (b) $0.2 \times 0.3 = 0.06$
   (c) $0.4 \times 10.4 = 4.16$ (d) $1.4 \times 0.5 = 0.7$
   (e) $0.02 \times 0.7 = 0.014$ (f) $3.3 \times 3.3 = 10.89$
   (g) 4.3×6.5 (g)

$$\begin{array}{r} 4.3 \\ \times\ 6.5 \\ \hline 215 \\ 2580 \\ \hline 2795 \end{array}$$
27.95

$$\begin{array}{r} 7.5 \\ \times\ 5.7 \\ \hline 525 \\ 3750 \\ \hline 4275 \end{array}$$
42.75

2. (a)
$$\begin{array}{r} 137 \\ \times\ 24 \\ \hline 548 \\ 2740 \\ \hline 3288 \end{array}$$
$0.137 \times 0.24 = 0.03288$

(b)
$$\begin{array}{r} 316 \\ \times\ 135 \\ \hline 1580 \\ 9480 \\ 31600 \\ \hline 42660 \end{array}$$
$0.316 \times 0.135 = 0.004266$

(c) 2.4316 by 2.35
$$\begin{array}{r} 24316 \\ \times\ 235 \\ \hline 121580 \\ 729480 \\ 4863200 \\ \hline 5714260 \end{array}$$
$2.4316 \times 2.35 = 5.71426$

(d) 1.0004 by 0.35
$$\begin{array}{r} 10004 \\ \times\ 35 \\ \hline 50020 \\ 300120 \\ \hline 350140 \end{array}$$
$1.0004 \times 0.35 = 0.350140$

(e) 0.008×3.12
$$\begin{array}{r} 8 \\ \times\ 312 \\ \hline 16 \\ 80 \\ 2400 \\ \hline 2496 \end{array}$$
$0.008 \times 3.12 = 0.02496$

(f) 4.0075 by 4.0205
$$\begin{array}{r} 40075 \\ \times\ 40205 \\ \hline 200375 \\ 000000 \\ 8015000 \\ 1603000000 \\ \hline 1611215375 \end{array}$$
$4.0075 \times 4.0205 = 16.112154$

3. (a) $0.8 \times .7 = 7 \times 0.8$ (b) $12 \times 11.48 = 11.48 \times 12$
(c) $4.5 \times 1.2 = 1.2 \times 4.5$
(d) $1.6 \times (4.2 \times 0.7) = (16 \times 4.2) \times 0.7$
(e) $(5 \times 5.6) \times 1.3 = 5 \times (5.6 \times 1.3)$

4. (a) $24.35 \times 1 = 24.35$ (b) $1 \times 4.8 = 4.8$
(c) $235.001 \times 1 = 235.001$ (d) $51.6 \times 0 = 0$
(e) $0 \times 0.475 = 0$

5. Multiply :

(a) $5.1 \times 0.5 \times 0.5 = 5.1 \times 0.25$

$$\begin{array}{r} 51 \\ \times\ 25 \\ \hline 255 \\ 102\times \\ \hline 1275 \end{array}$$

$5.1 \times 0.5 \times 0.5 = 1.275$

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

(c) $0.5 \times 8.7 \times 0.66 = 0.5 \times 0.66 = 0.330 = 0.33 \times 8.7$

$$\begin{array}{r} 87 \\ \times\ 33 \\ \hline 261 \\ 261\times \\ \hline 2871 \end{array}$$

$8.7 \times 0.5 \times 0.66 = 2.871$

(d) $0.308 \times 3.37 \times 0.07 = 0.02156 \times 3.37$

$$\begin{array}{r} 2156 \\ \times\ 337 \\ \hline 15092 \\ 64680 \\ 646800 \\ \hline 726572 \end{array}$$

$0.308 \times 3.37 \times 0.07 = 0.0726572$

(e) $1.01 \times 4.1 \times 0.001$

$$\begin{array}{r} 101 \\ \times\ 41 \\ \hline 101 \\ 4040 \\ \hline 4141 \end{array}$$

$0.01 \times 4.1 \times 0.001 = 0.004141$

(f) $0.48 \times 0.06 \times 2.3 \times 0.03 = .0288 \times .069$

$$\begin{array}{r} 288 \\ \times\ 69 \\ \hline 2592 \\ 17280 \\ \hline 19872 \end{array}$$ 0.0019872

Exercise 8.3

1. $9.5 \div 10 = 0.95$
2. $74.26 \div 10 = 7.426$
3. $843.5 \div 100 = 8.435$
4. $837.6 \div 1000 = 0.8436$
5. $531.27 \div 9 = 0.8376$

$$\begin{array}{r|l} 9 & 531.27 \\ 45 & \\ \hline 81 & \\ 81 & \\ \hline 2 & \\ 0 & \\ \hline 27 & \\ 27 & \\ \hline \times & \end{array}$$ 59.03

6. $39.026 \div 13$

$$\begin{array}{r|l} 13 & 39.026 \\ 39 & \\ \hline 026 & \\ 26 & \\ \hline \times & \end{array}$$ 3.002

7. $23.4 \div 18$

$$\begin{array}{r|l} 18 & 23.4 \\ 18 & \\ \hline 54 & \\ 54 & \\ \hline \times & \end{array}$$ 1.3

8. 8.016×24

$$\begin{array}{r|l} 24 & 8.016 \\ 72 & \\ \hline 81 & \\ 72 & \\ \hline 96 & \\ 96 & \\ \hline \times & \end{array}$$ 0.334

9. $1.008 \div 14$

$$\begin{array}{r|l} 14 & 1.008 \\ 98 & \\ \hline 28 & \\ 28 & \\ \hline \times & \end{array}$$ 0.072

10. $7.5 \div 1.25$

$$\frac{7.5}{1.25} \times \frac{100}{10}$$ as 1.25 has 2 place of decimals

$$= \frac{750}{125} = 6$$

11. $1.275 \div 0.85$

$$\frac{1.275}{0.85} \times \frac{100}{100}$$ as 0.85 has 2 place of decimals

$$= \frac{127.5}{85} = 1.5$$

12. $26.62 \div 2.2$

$$\frac{26.62}{2.2} \times \frac{10}{10}$$ as 2.2 has 1 place of decimal

$$= \frac{266.2}{22} = 12.1$$

13. $0.884 \div 0.34$

$$\frac{0.884}{0.34} \times \frac{100}{100}$$ as .34 has 2 place of decimal

$$= \frac{88.4}{34} = 2.6$$

14. $3.249 \div 0.09$

$$\frac{3.249}{0.09} \times \frac{100}{100}$$ as 0.09 has 2 place of decimal

$$= \frac{324.9}{9} = 36.1$$

15. $1.078 \div 0.7$

$$\frac{1.078}{0.7} \times \frac{10}{10} \qquad \text{as .7 has 1 place of decimal}$$

$$= \frac{10.78}{7} = 1.54$$

Exercise 8.4

1. $24 \div 1.2 = \frac{24}{1.2}$ the divisor has 1 place decimal

$$\frac{24 \times 10}{1.2 \times 10} = \frac{240}{12} = 20$$

2. $75 \div 0.25 = \frac{75}{0.25}$ the divisor has 2 place of decimals

$$\frac{75}{0.25} \times \frac{100}{100} = \frac{7500}{25} = 300$$

3. $15 \div 0.5 = \frac{15}{0.5}$ the divisor has 1 place of dcimal

$$\frac{15}{0.5} \times \frac{10}{10} = \frac{150}{5} = 30$$

4. $90 \div 3.6 = \frac{90}{3.6}$ the divisor has 1 place of decimal

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

5. $625 \div 2.5 = \frac{625}{2.5}$ the divisor has 1 place of decimal

$$\frac{625}{2.5} \times \frac{10}{10} = \frac{6250}{25} = 250$$

6. $3060 \div 20.4 = \frac{3060}{20.4}$

$$\frac{3060}{20.4} \times \frac{10}{10} = \frac{30600}{204} = 150$$

7. $8421 \div 4.01 = \frac{8421}{4.01}$ as 4.01 has 2 place of decimals

$$\frac{8421}{4.01} \times \frac{100}{100} = \frac{842100}{401} = 2100$$

8. $3417 \div 20.1 = \frac{3417}{20.1}$ as 20.1 has 1 place of decimals

$$\frac{3417}{20.1} \times \frac{10}{10} = \frac{34170}{201} = 170$$

9. $31 \div 0.775 = \frac{31}{0.775}$ as 0.775 has 3 places of decimals

$$\frac{31}{0.775} \times \frac{1000}{1000} = \frac{31000}{775} = 40$$

10. $36 \div 0.45 = \frac{36}{0.45}$ as 0.45 has 2 place of decimals

$$\frac{36}{0.45} \times \frac{100}{100} = \frac{3600}{45} = 80$$

Exercise 8.5

1. Cost of 1m pipe = ₹10.50
   Cost of 9.5m pipe = ₹ 9.5×10.50 = ₹99.75
2. 1 shirt require = 2.25m cloth
   18 shirts require = $18 \times 2.25 = 40.5$ m
3. 1 bag capacity = 35.250kg
   45 bags capacity = $45 \times 35.250 = 1586.25$ kg
4. Cost of 16 saree = ₹728.40
   Cost of 1 saree = $728.40 \div 16$ = ₹453.65
5. 1 tin contain = 10.5l
   18 tin contain = $10.5 \times 18 = 189$ lt
6. 2.2m require for 1 shirt

   57.2m make = $\frac{57.2}{2.2} \times \frac{10}{10} = \frac{572}{22} = 26$ shirts

7. Neeru for 7 days got money = ₹89.25

For 1 day $= \frac{89.25}{7} = 12.75$

8. 1 cardboard thickness $= 0.0025$m
Cardboards made of thickness $0.5 = 0.5 \div 0.0025$

$$= \frac{0.5}{0.0025} \times \frac{10000}{10000} = \frac{5000}{25} = 200$$

$= 200$ piece of cardboard

Test Paper

1. (a) $14.75 \times 1000 = 14750$ (b) $2.9 \times 10 = 29$
(c) $3.1179 \times 100 = 311.79$ (d) $1.1123 \times 10 = 11.123$
(e) $1.5 \times 1000 = 1500$ (f) $1.113 \times 100 = 111.3$

2. (a) $\frac{17.35}{10} = 1.735$ (b) $\frac{0.6}{100} = 0.006$
(c) $\frac{9.35}{100} = 0.0935$ (d) $\frac{429.5}{1000} = 0.4925$
(e) $\frac{9.25}{500} = 0.0185$ (f) $\frac{21.10}{50} = 0.422$

3. Decimal jumps one place towards right or it become 10 times.

II. 1. (d) $\frac{8.0709}{100} = 0.080709$ 2. (a) $540.6 \div 10 = 54.06$

3. (b) $6.24 \times 0.9 = 5.616$
4. (a) Weight of 10 bags sugar $= 1019.6$ kg

1 bag sugar weight $= \frac{1019.6}{10} = 101.96$

5. (d) 1 chocolate cost $= ₹29.85$
16 chocolate cost $= 16 \times 29.85 = ₹477.60$

Activity Time

Length	Per Meter cost	Total Cost cost	Amount given	Balance
22 m	₹3.50	₹77	₹100	₹23
12.5 m	₹3.50	₹43.75	₹100	₹56.25
30.6m	₹3.50	₹107.1	₹150	₹42.9
42.4m	₹3.50	₹148.4	₹150	₹1.6
50.05m	₹3.50	₹175.175	₹500	₹324.825

9 Rounding Off Numbers

Exercise 9.1

1. Nearest 10.
   (a) 24 = 20 (b) 38 = 40 (c) 48 = 50 (d) 55 = 60
   (e) 186 = 190 (f) 373 = 370 (g) 590 = 590 (h) 164 = 160
2. Nearest 100.
   (a) 125 = 100 (b) 456 = 500 (c) 345 = 300 (d) 746 = 700
   (e) 908 = 900 (f) 632 = 600 (g) 289=300 (h) 946=900
3. Nearest 1000.
   (a) 5315 = 5000 (b) 9685 = 10000
   (c) 8017 = 8000 (d) 46234 = 46000
   (e) 653214 = 653000 (f) 632583 = 633000
   (g) 992859 = 993000
4. Nearest 10000.
   (a) 84057 = 80000 (b) 95462 = 100000
   (c) 10003 = 10000 (d) 61003 = 60000
   (e) 723564 = 720000 (f) 724445 = 720000

Exercise 9.2

1. (a) 23 = 20 (b) 76=80 (c) 82 = 80 (d) 38=40
   (e) 206=210 (f) 249=250 (g) 762=760 (h) 197=200
   (i) 5799=5800 (j) 7032 = 7030

2. Nearest hundred
   (a) 256 = 300 (b) 581 = 600
   (c) 1183 = 1200 (d) 1749 = 1700
   (e) 63481 = 63500 (f) 28481 = 28500
   (g) 10809 = 10800 (h) 5008 = 5000
3. Nearest thousand
   (a) 3939 = 4000 (b) 4556 = 5000
   (c) 4678 = 5000 (d) 7816 = 8000
   (e) 5374 = 5000 (f) 15768 = 16000
   (g) 15496 = 15000 (h) 80500 = 81000
4. Nearest whole number or 1.
   (a) 71.55 = 72 (b) 14.983 = 15
   (c) 772.2 = 772 (d) 542.843 = 543
   (e) 1140.892 = 1141 (f) 1.835 = 2
5. Nearest tenth.
   (a) 5.26 = 5.3 (b) 8.52 = 8.5
   (c) 9.09 = 9.1 (d) 8.69 = 8.7
   (e) 13.45 = 13.5 (f) 16.07 = 16.1
   (g) 98.0046 = 98.0 (h) 11.152 = 11.2
6. Two decimal places.
   (a) 6.285 = 6.29 (b) 7.777 = 7.78
   (c) 9.016 = 9.02 (d) 8.532 = 8.53
   (e) 13.708 = 13.71 (f) 27.574 = 27.57
   (g) 30.004 = 30.00 (h) 39.875 = 39.88

Test Paper

1. 42, 83, 527, = 4283530 2. 53,94,638 = 5395000
3. 31,72,416 = 32,00,000
4. Nearest one
   (a) 7.3 = 7.0 (b) 14.6 = 15.0
   (c) 243.8 = 244.0
5. Nearest tenth
   (a) 7.36 = 7.4 (b) 43.27 = 43.3 (c) 289.31=289.3

Multiple Choice Questions

1. (b) 32,87,263 = 3287260 sq km
2. (a) 32,87,236 = 3287300 sq km

3. (a) $32,87,263 = 3287000$ sq km
4. (a) $32,87,263 = 3290000$ sq km
5. (b) $32,87,263 = 3300000$ sq km

Activity Time

State	Area	Round off	Round of sq/km
Lakshadweep	32	10	30
Pondicherry	492	100	500
Delhi	1483	1000	1000
West Bental	88752	10000	90000
Uttar Pradesh	238566	100000	200000
Rajasthan	342239	100000	300000
Maharastra	307713	100000	300000

10 Averages

Exercise 10.1

1. Ages are 12, 13, 15 years
   There are 3 persons

$$\text{So, average} = \frac{\text{Total age}}{\text{No. of person}}$$

$$= \frac{12+13+15}{3} = \frac{40}{3}$$

$$= 13 \text{ years } 4 \text{ months}$$

2. Marks obtain are 65, 72, 96, 83, 74
   Total number of subjects = 5

$$\text{Average} = \frac{\text{Total marks}}{\text{Total No. of subject}}$$

$$= \frac{65+72+96+83+74}{5} = \frac{390}{5}$$

$= 78$ marks

3. Temperature record $= 36.2, 35, 32.3, 41.1, 31.5, 30.2, 37.2$
   No of days $= 7$

$$\text{Average} = \frac{\text{Temperature record}}{\text{No. of days}}$$

$$= \frac{36.2 + 35 + 32.3 + 30.2 + 37.2 + 31.5 + 41.1}{7}$$

$$= \frac{243.5}{7} = 34.79°C$$

5. Team A scored $= 216$ points
   Number of questions $= 8$

$$\text{Average} = \frac{\text{Scored points}}{\text{No. of questions}} = \frac{216}{8} = 27$$

Team B scored $= 288$ points
No. of questions $= 12$

$$\text{Average} = \frac{\text{Scored points}}{\text{No. of questions}} = \frac{288}{12} = 24$$

Average of team A > team B averag
So team A is better.

6. Number of employee $= 8$
   Salary got $= ₹4550$
   Total salary $= 4550 \times 8 = ₹36400$
   Salary $= ₹6010$ each
   No. of employee $= 4$
   Total salary $= 6010 \times 4 = 24040$
   Net salary $= 24040 + 36400 = 60440$
   Total employee $= 8 + 4 = 12$

$$\text{Average} = \frac{60440}{12} = 5036.66 = ₹5037$$

7. Man total income $= ₹6000 + ₹7800 = ₹13800$

Total months $= 6+6=12$

Average $= \frac{\text{Income}}{\text{Months}} = \frac{13800}{12} = ₹1150$

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

average marks = 75

(b) Maths $90 > 75$ Science $84 > 75$

Only maths and science

(c) Social science, English, Hindi

Test Paper

I. 1. Average $= \frac{1+2+3+4+5}{5} = \frac{15}{5} = 3$

2. Average $= \frac{23+24+54+46+38}{5} = \frac{185}{5} = 37$

3. Average $= \frac{2+3+5+7+0+10+11}{7} = \frac{38}{7} = 5.43$

4. Even number between 10 and 20 $= \frac{12+14+16+18}{4}$

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

.

II. Multiple Choice Questions

1. (c) Average $= \frac{48+37+29+34+17}{5} = \frac{165}{5} = 33$

2. Maths 48, English, Science (b) 3 3. (a) 2

Activity Time

1. Average height $= \frac{152.6+156+154.4+158+153+152}{6}$

$= \frac{926.0}{6} = 154.33 cms$

2. Average salary $= \frac{10\times 36500+4\times 32450+2\times 28200}{16}$

$= \frac{551200}{16} = ₹34450$

11 Ratio

Exercise 11.1

1. (a) $\frac{15}{25} = \frac{3}{5}$ (b) $\frac{78}{39} = \frac{2}{1}$ (c) $\frac{24}{36} = \frac{2}{3}$ (d) $\frac{96}{72} = \frac{4}{3}$

   (e) 1 minute = 60 seconds
   3 minutes = $3 \times 60 = 180$

   $$\frac{20}{180} = \frac{1}{9}$$

   (f) 1 week = 7 days
   4 days = 4

   7 days = 7 $\frac{4}{7}$ or 4 : 7

   (g) 1 year = 12 months

   7 year = $7 \times 12 = \frac{7}{7 \times 12} = \frac{1}{12}$

   (h) 1 day = 24 hours

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

2. (a) 12 boys, 15 girls = $\frac{12}{15} = \frac{4}{5}$

   (b) Girls to boys = $\frac{15}{12} = \frac{5}{4}$

   (c) Girls to the total students = $\frac{12}{12+15} = \frac{12}{27} = \frac{4}{9}$

   (d) Girls to the total students = $\frac{15}{27} = \frac{5}{9}$

3. $\frac{\text{Length}}{\text{Breadth}} = \frac{5}{4}$

If length = 25 m

$$\text{Breadth} = \frac{5}{4} \times \text{length} = \frac{5}{4} \times 25 = \frac{125}{4} = 31.25$$

4. Ratio of their money is $= \frac{5}{6}$

   Riya has ₹60

   then Kruti had $= \frac{6}{5} \times 60 = 72$

   Kruti had ₹72.

5. Ratio of distribution = 5 : 3
   Total money = ₹ 800

   Manu got $= \frac{5}{8} \times 800$

   As the total ratio of distribution comes out to be = 5 + 3 = 8

   So out of it Manu got $= \frac{5}{8} \times 800 = ₹500$

6. The ratio between man and women is $\frac{3}{2}$

   As total ratio comes out to be = 3 + 2 = 5

   As 165 are total men, and women so men $= \frac{3}{5} \times 165 = 99$

   There are 99 men.

7. Total fruits = 440

   The ratio apple to mangos $= \frac{5}{6}$

   Total ratio = 5 + 6 = 11

   Mangoes in basket $= \frac{6}{11} \times 440 = 240$

8. The water content = 4 lts

The ratio between water and acoehol = $\frac{2}{3}$

Alcohol content = $\frac{3}{2} \times 4 = 6$ lts

9. Sides ratio = 5 : 6 : 13
Perimeter = 48 cm
All side total ratio = 5 + 6 + 13 = 24

The ratio = $\frac{48}{24} = \frac{2}{1}$

So sides are = $5 \times 2 = 10$cm
= $6 \times 2 = 12$ cm
= $13 \times 2 = 26$ cm

12 Percentages

Exercise 12.1

1. $\frac{1}{2} = \frac{1 \times 50}{2 \times 50} = \frac{50}{100} = 50\%$ $(\therefore 100 \div 2 = 50)$

2. $\frac{1}{4} = \frac{1 \times 25}{2 \times 25} = \frac{25}{100} = 25\%$ $(\therefore 100 \div 4 = 25)$

3. $\frac{3}{4} = \frac{3 \times 25}{4 \times 25} = \frac{75}{100} = 75\%$

4. $\frac{5}{8} = \frac{5 \times 12.5}{8 \times 12.5} = \frac{62.5}{100} = 62.5\%$ $(\therefore 100 \div 8 = 12.5)$

5. $\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$ $(\therefore 100 \div 5 = 20)$

6. $\frac{4}{5} = \frac{4 \times 20}{5 \times 20} = \frac{80}{100} = 80\%$

7. $\frac{13}{20} = \frac{13 \times 5}{20 \times 5} = \frac{65}{100} = 65\%$ $(\therefore 100 \div 20 = 5)$

8. $1\frac{2}{5} = \frac{7}{5} = \frac{7 \times 20}{5 \times 20} = \frac{140}{100} = 140\%$

9. $4\frac{1}{5} = \frac{21}{5} = \frac{21 \times 20}{5 \times 20} = \frac{420}{100} = 420\%$

10. $4\frac{3}{10} = \frac{43}{10} = \frac{43 \times 10}{10 \times 10} = \frac{430}{100} = 430\%$

11. $2\frac{3}{5} = \frac{13}{5} = \frac{13 \times 20}{5 \times 20} = \frac{260}{100} = 260\%$

12. $\frac{3}{50} = \frac{3 \times 2}{50 \times 2} = \frac{6}{100} = 6\%$ $(\therefore 100 \div 50 = 2)$

13. $0.5 = \frac{05 \times 10}{10 \times 10} = \frac{50}{100} = 50\%$

14. $0.15 = \frac{15}{100} = 15\%$

15. $0.35 = \frac{35}{100} = 35\%$

16. $0.215 = \frac{12.5}{100} = 12.5\%$

17. $0.05 = \frac{5}{100} = 5\%$

18. $1.25 = \frac{125}{100} = 125\%$

19. $2.05 = \frac{205}{100} = 205\%$

20. $3.5 = \frac{35 \times 10}{10 \times 10} = \frac{350}{100} = 350\%$

21. $6.25 = \frac{625}{100} = 625\%$

22. $1.03 = \frac{103}{100} = 103\%$

23. $0.02 = \frac{2}{100} = 2\%$

24. $0.05 = \frac{5}{100} = 5\%$

Exercise 12.2

1. $25\% = \frac{25}{100} = \frac{1}{4}$

2. $85\% = \frac{85}{100} = \frac{17}{20}$

3. $50\% = \frac{50}{100} = \frac{1}{2}$

4. $75\% = \frac{75}{100} = \frac{3}{4}$

5. $4\frac{1}{2}\% = \frac{9}{2}\% = \frac{9}{200}$

6. $6\frac{1}{4}\% = \frac{25}{4}\% = \frac{25}{400} = \frac{1}{4 \times 4} = \frac{1}{16}$

7. $8\frac{2}{3}\% = \frac{26}{3}\% = \frac{26}{300} = \frac{13}{150}$

8. $12\frac{1}{2}\% = \frac{25}{2}\% = \frac{25}{200} = \frac{1}{8}$

9. $11\frac{1}{9}\% = \frac{100}{9}\% = \frac{100}{900} = \frac{1}{9}$

10. $140\% = \frac{140}{100} = \frac{7}{5} = 1\frac{2}{5}$

11. $150\% = \frac{150}{100} = \frac{3}{2} = 1\frac{1}{2}$

12. $300\% = \frac{300}{100} = 3$

13. $30\% = \frac{30}{100} = 0.30$

14. $55\% = \frac{55}{100} = 0.55$

15. $75\% = \frac{75}{100} = 0.75$

16. $4\% = \frac{4}{100} = 0.04$

17. $8\% = \frac{8}{100} = 0.08$

18. $4\frac{1}{2}\% = \frac{9}{2}\% = \frac{9}{200} = \frac{4.5}{100} = 0.045$

19. $13.5\% = \frac{135}{1000} = 0.135$

20. $115\% = \frac{115}{100} = 1.15$

21. $5\frac{1}{4}\% = \frac{21}{4}\% = \frac{21}{400} = 0.0525$

22. $4\frac{3}{5}\% = \frac{23}{5}\% = \frac{4.6}{100} = 0.046$

23. $5\frac{3}{4}\% = \frac{23}{4}\% = \frac{5.75}{100} = 0.0575$

24. $7\frac{1}{4}\% = \frac{29}{4}\% = \frac{7.25}{100} = 0.0725$

Exercise 12.3

1. (a) $5\%\ \text{of}\ 40$

$$\frac{5}{100} \times 40 = \frac{20}{10} = 2$$

(b) $8\%\ \text{of}\ 80$

$$\frac{8}{100} \times 80 = \frac{64}{10} = 6.4$$

(c) $12\frac{1}{2}\%\ of\ 300$

$$\frac{25}{2} = \frac{25}{2 \times 100} = \frac{1}{8} = \frac{1}{8} \times 300 = 37.5$$

(d) $60\%\ \text{of}\ 90$

$$\frac{60}{100} \times 90 = 54$$

(e) $75\%\ \text{of}\ 40$

$$\frac{75}{100} \times 40 = 30$$

(f) $25\%\ \text{of}\ 1200$

$$\frac{25}{100} \times 1200 = 300$$

2. (a) $4\%\ \text{of}\ ₹350$

$$\frac{4}{100} \times 350 = 14$$

(b) $30\%\ \text{of}\ ₹40$

$$\frac{30}{100} \times 40 = 12$$

(c) 50% of ₹800

$$\frac{50}{100} \times 800 = ₹400$$

(d) 2% of ₹1200

$$\frac{2}{100} \times 1200 = ₹24$$

(e) 20% of 8km

$$\frac{20}{100} \times 8 = 1.6 \text{ km}$$

(f) $6\frac{1}{4}\%of 160km$

$$\frac{25}{4}\% \times 160 = \frac{25}{100 \times 4} \times 160 = 10 \text{ km}$$

3. $\frac{72}{100} \times 100 = 72\%$

4. 1 year = 365 days

292 days of a year = $\frac{292}{365} \times 100 = 80\%$

5. 33 as a per cent of 165 = $\frac{33}{165} \times \frac{100}{1} = 20\%$

Word Problem

7. 60% of total votes

$$\frac{60}{100} \times 20{,}000 = 12000$$

12000 votes is of winning and for defeated candidate

$$= 20{,}000 - 12000 = 8{,}000 \text{ votes}$$

8. Student scored = 576 out of 900

Percentage got = $\frac{576}{900} \times 100 = 64\%$

9. 25% of a pair of shoe price is 720

$$\text{Amount of rebate} = \frac{25}{100} \times 720 = ₹180$$

Amount of rebate is ₹180

10. Neha weight = 45kg
Brother weight = 20% more than Neha
So, 20% of 45

$$\frac{20}{100} \times 45 = 9$$

So, her brother's weight $= 45 + 9 = 54\ kg$

Test Paper

1. 10% of 25 kg

$$\frac{10}{100} \times 25 = 2.5\ \ kg$$

2. 75% of 20kg

$$\frac{75}{100} \times 20 = 15kg$$

3. 50% of ₹150

$$\frac{50}{100} \times 150 = \ ₹75$$

4. 12% of ..... is 54

$$\frac{54 \times 100}{12} = 450$$

5. (a) Odd number = 1, 3, 5, 7, 11
Number count = 5
Total number = 10

$$\text{Percentage} = \frac{5 \times 100}{10} = 50\%$$

(b) Number less than 8 = 1, 2, 3, 4, 5, 7
Number count = 6
Total number = 10

$$\text{Percentage} = \frac{6 \times 100}{10} = 60\%$$

6. 1 year = 12 months
   Total vacation = 3 months

$$\text{Percentage} = = \frac{3}{12} \times 100 = 25\%$$

7. As 50 is increased to 70
   So increase = $70 - 50 = 20$

$$\text{Percentage increased} = \frac{20}{50} \times 100 = 40\%$$

8. 1 month = 30 days
   3 months = $30 \times 4 = 120$ days

$$50\% \text{ of } 4 \text{ months} = \frac{50}{100} \times 120 = 60 \text{ days}$$

Multiple Choice Questions

1. $48\% = \frac{48}{100} = \frac{12}{25}$ (b)

2. $\frac{14}{70} \times 100 = 20\%$ (a)

3. $\frac{16}{8} \times 100 = ₹ 200$ (c)

4. 1 km = 1000 m

$$300 \text{ m} = \frac{1000}{300} \times 100 = 333.3\% \text{ (a)}$$

5. $\frac{9}{100} \times 70 = \frac{63}{10} = 6.3$ (c)

III. (a) $25\% = \frac{25}{100} = \frac{1}{4}$ (b) $12.5\% = \frac{125}{1000} = \frac{1}{8}$

(c) $6\frac{1}{4}\% = \frac{25}{4}\% = \frac{25}{400} = \frac{1}{16}$ (d) $90\% = \frac{90}{100} = \frac{9}{10}$

(e) $7.5\% = \frac{75}{1000} = \frac{3}{40}$

Activity Time

	Total	%age
Deepak	390	78%
Garima	398	79.6
Mini	372	74.4
Rajat	395	79%
Rahul	405	81%

(a) Toper of the class is Rahul

(b) Student lagged behind from first = 81 – 79.6 = 1.4%

13 Profit and Loss

Exercise 13.1

1. (a) C.P. = ₹370; S.P. = ₹400
   Profit = S. P. – C.P.
   = 400 – 370 = ₹30

   (b) C.P. = ₹425; S.P. = ₹375
   Loss = C. P. – S.P.
   = 425 – 375 = ₹55

   (c) S.P. = ₹ 995; C.P. = ₹ 918
   Profit = S.P. – C.P.
   = 995 – 918 = ₹ 77

   (d) S.P. = ₹ 1100; S.P. = ₹1180
   Loss = 1180 – 1100 = ₹80

2. (a) C.P. = ₹880; Profit = ₹ 88
   S.P. = Profit + C.P.
   = 880 + 88 = ₹ 968

   (b) C.P. ₹ 1320; Loss = ₹ 254
   S.P. = C.P. – loss
   = 1320 – 254 = ₹ 1066

   (c) S.P. = ₹ 4425; Gain = ₹442
   C.P. = S.P. – Gain

$= 4425 - 442 = ₹\,3983$

(d) S.P. $= ₹\,13565$; Loss $= ₹\,554$

C.P. $=$ Loss + S.P.

$= 554 + 13565 = ₹14119$

3. C.P. of hockey $= ₹\,250$

S.P. $= ₹\,310$

Profit $=$ S.P. $-$ C.P.

$= 310 - 250 = ₹\,60$

4. C.P. of a goggles $= ₹\,184$

S.P. to his friend $= ₹\,175$

Loss $=$ C.P. $-$ S.P.

$= 184 - 175 = ₹\,9$

5. Total Cost price $= ₹13285 + ₹\,245 = ₹13530$

S.P. $= ₹\,14500$

Profit $= 14500 - 13530 = ₹\,970$

6. 360 eggs of ₹18 per dozen

Damaged eggs $= 40 + 20 = 60$

Left eggs $= 360 - 60 = 300$

As he sale 300 eggs at ₹21 per dozen

1 dozen $= 12$ eggs

C.P. ₹18 per dozen $= \frac{18}{12} \times 360 = ₹540$

S.P. of 300 eggs @ ₹21 per dozen $= \frac{21}{12} \times \frac{300}{1} = ₹525$

Loss $= ₹540 - ₹525 = ₹15$

7. C.P. of moped $= ₹16000$

Profit $= ₹1560$

S.P. $=$ Profit + C.P. $= 1560 + 16000 = ₹\,17560$

8. C.P. of Shirt $= ₹\,125$

Loss $= ₹\,45$

S.P. $=$ C.P. $-$ loss $= 125 - 45 = ₹\,80$

9. S.P. of sofa $= ₹\,3875$

Loss $= ₹\,1516$

C.P. $=$ S.P. + loss

$= 3875 + 1516 = ₹ 5391$

10. S.P. of 1 book $= ₹20$
    S.P. of 12 books $= 12 \times 20 = 240$
    Profit $= ₹ 24$
    C.P. $=$ S.P. – profit
    $= 240 - 24 = 216$
    C.P. of 1 book $= 216 \div 12 = ₹18$

Test Paper

I. 1. Cost price
2. Profit
3. Loss
4. Selling price
5. Overhead expenses
6. S.P. – C.P.
7. C.P. of TV $= ₹6800$
   S.P. of TV $= ₹ 8000$
   Profit $=$ S.P. – C.P.
   $= 8000 - 6800 = ₹ 1200$
8. S.P. of washing machine for ₹ 23900
   Profit $= ₹ 700$
   C.P. $=$ S.P. – Profit
   $= 23900 - 700 = ₹ 23200$

Multiple Choice Questions

1. (b) S.P. > C.P.
2. (a) S.P. < C.P.
3. Rice C.P. $= ₹ 20$ per kg
   S.P. $= ₹ 23$ per kg
   Profit $=$ S.P. – C.P.
   $= 23 - 20 = ₹ 3$ (c)
4. Pencils C.P. $= ₹ 150$
   S.P. $= ₹ 127$
   Loss $=$ C.P. – S.P.
   $= 150 - 127 = ₹ 23$ (a)
5. S.P. of book $= ₹ 850$
   Loss $= ₹ 180$
   S.P. $=$ C.P. – loss
   $= 850 - 180 = ₹ 670$ (a)

Activity Time

Item	C.P.	S.P.	Profit	How much
TV	₹ 10000	₹ 11900	Profit	₹ 1,900
Refrigerator	₹ 11680	₹ 12000	Profit	₹ 320
CD Player	₹ 5630	₹ 6650	profit	₹ 1020
Washing M.	₹ 8900	₹ 12080	profit	₹ 3180
AC	₹ 12850	₹ 8500	loss	₹ 4350
Cooler	₹ 7200	₹ 5800	loss	₹ 1400
DVD player	₹ 3080	₹ 6500	profit	₹ 3420

(a) Overall profit = ₹ 9840, loss = ₹ 5750

(b) total profit = 9840 – 5750 = ₹ 4090

14 Simple Interest

Exercise 14.1

1. Principal = ₹ 900; time = 2 years; rate = 10%

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

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

2. P = ₹ 1600; T = 1 year; R = 12%

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{1600 \times 12 \times 1}{100} = ₹\ 192$$

3. P = ₹ 2500; R = 5%; $T = 2\frac{1}{2}$ years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$S.I. = \frac{2500 \times 5}{100} \times \frac{5}{2} = ₹\ 312.50$$

P = ₹ 312.50

4. A man borrows ₹ 8000
   Time = 1 year; interest = 5%

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

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

Amount = Principle + Interest
= 8000 + 400 = ₹8400

5. Principal = ₹ 15000; interest rate = 10%; time = 2 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

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

6. Principal = ₹ 1500; rate = 9%; Time = 5 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

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

Amount = 1500 + 675 = ₹ 2175

7. Principal = ₹15750; Interest = 10%; Time = 10 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{15750 \times 10 \times 10}{100} = 15750$$

Amount = Principal + Interest
= 15750 + 15750 = ₹31500

8. Principal = ₹ 10400; Interest = $7\frac{1}{2}\% = \frac{15}{2}\%$; $T = 3\frac{1}{2} = \frac{7}{2}$

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{10400 \times 15 \times 7}{100 \times 2 \times 2} = 2730$$

Amount = Principal + Interest

= 10400 + 2730 = ₹ 13130

Test Paper

I. (i) R = 500, R = 5%, T = 1 year

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{500 \times 5 \times 1}{100} = ₹ 25$$

Amount = P + S.I. = 25 + 500 = ₹ 525

(ii) P = 2000; R = 10%; T = 2 years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{2000 \times 10 \times 2}{100} = ₹ 400$$

Amount = P + S.I. = 2000 + 400 = ₹ 2400

(iii) P = 8000, R = 12%, T = 1 year

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{8000 \times 12 \times 1}{100} = ₹ 960$$

Amount = P + S.I. = 8000 + 960 = ₹ 8960

(iv) P = 6400; R = 6%; $T = 1\frac{1}{2}$ years

$$\text{S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{6400 \times 3 \times 6}{100 \times 2} = ₹ 576$$

Amount = P + S.I. = 6400 + 576 = ₹ 6976

Multiple Choice Questions

1. P = 2000; T = 3 years, R = 15%

$$\text{S.I.} = \frac{P \times R \times T}{100} = \frac{2000 \times 3 \times 15}{100} = 900(a)$$

2. P = 4800; T = 3 years; R = 12%

$$\text{S.I.} = \frac{P \times R \times T}{100} = \frac{4800 \times 12 \times 3}{100} = ₹\,1728$$

Amount = P + S.I. = 4800 + 1728 = ₹ 6528 (a)

3. P = 8400; I = 15%; T = 5 years

$$\text{S.I.} = \frac{P \times R \times T}{100} = \frac{8400 \times 15 \times 5}{100} = ₹\,6300$$

Amount = 8400 + 6300 = ₹ 14700 (b)

Activity Time

(a) P = 12000, R = 6%, T = 1

$$\text{S.I.} = \frac{P \times R \times T}{100} = \frac{12000 \times 6 \times 1}{100} = ₹\,720$$

(b) $P = \frac{1800 \times 3 \times 1}{100} = ₹\,540$

As 'a' will take more by = 720 – 540 = ₹ 180

15 Speed, Distance and Time

Exercise 15.1

1. (a) Distance = 90, time = 2 hr

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{90}{2} = 45 km/hr$$

(b) Distance = 750, time = 15 hr

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

(c) $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{525}{5} = 105 km/hr$

(d) $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{1875}{25} = 75 km/hr$

(e) $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{1200}{3/2} = \frac{1200 \times 2}{3} = 800 km/hr$

2. Distance = 360 km; time = 4 hour

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{360}{4} = 90 km/hr$$

3. Distance = 650km; Time = 10 hours

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{650}{10} = 65 km/hr$$

4. Distance = 180 km; Time = 4 hour

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{180}{4} = 45 km/hr$$

5. Distance = 6 km Time = 10 minutes or $\frac{1}{6}$ hr

$$\text{Sheena Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{6 \times 6}{1} = 36 km/hr$$

$$\text{Priya Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{16}{15/60} = 64 km/hr$$

So, speed of Priya is greater than Sheena.

6. Distance = 72km; Time = 1 hr 30 min or 1+1/2 = 3/2 hours

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{72 \times 2}{3} = 48 km/hr$$

7. Rohan distance = 16 km, Time = 30 min or 1/2 hr

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{16 \times 2}{1} = 32 km/hr$$

Raghav distance = 12 km; Time = 20 min or 2/6 hr

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{12 \times 3}{1} = 36 km/hr$$

Raghav drive faster than Rohan.

Exercise 15.2

1. (a) 18km/hr; $\text{Speed} = \frac{18\text{km}}{1\text{ hr}} = \frac{18 \times 1000}{3600} = \frac{180}{36} = 5 m/s$

(b) 27km/hr; $\text{Speed} = \frac{27\text{km}}{1\text{ hr}} = \frac{27 \times 1000}{3600} = \frac{270}{36} = 7.5 m/s$

(c) $\text{Speed} = \frac{36\text{km}}{1\text{ hr}} = \frac{36 \times 1000}{3600} = 10 m/s$

(d) $\text{Speed} = \frac{150\text{km}}{1\text{ hr}} = \frac{150 \times 1000}{3600} = 41.67 m/s$

(e) $\text{Speed} = \frac{40\text{km}}{1\text{ hr}} = \frac{40 \times 1000}{3600} = 11.1 m/s$

(f) $\text{Speed} = \frac{14.4\text{km}}{1\text{ hr}} = \frac{14.4 \times 1000}{3600} = 4 m/s$

2. (a) 30m/sec $= \dfrac{30 \times \dfrac{1}{1000}}{1 \times \dfrac{1}{3600}} km/hr$

$= \dfrac{30 \times 3600}{1000} = 36 \times 3 = 108 km/hr$

(b) 12.5m/sec $= \dfrac{12.5 \times \dfrac{1}{1000}}{1 \times \dfrac{1}{3600}} km/hr$

$= \dfrac{12.5 \times 3600}{1000} = 45 km/hr$

(c) 90/msec $= \dfrac{90 \times \dfrac{1}{1000}}{1 \times \dfrac{1}{3600}} km/hr$

$= \dfrac{90 \times 3600}{1000} = 324 km/hr$

(d) 10m/sec $= \dfrac{10 \times \dfrac{1}{1000}}{1 \times \dfrac{1}{3600}} km/hr$

$= \dfrac{10 \times 3600}{1000} = 36 km/hr$

(e) 12m/sec $= \dfrac{12 \times \dfrac{1}{1000}}{1 \times \dfrac{1}{3600}} km/hr$

$= \dfrac{12 \times 3600}{1000} = 43.2 km/hr$

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

3. Distance = 300m; Time = 40 sec

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{300M}{40\,\text{sec}} = \frac{300 \times \frac{1}{1000}}{40 \times \frac{1}{3600}} km/hr$$

$$= \frac{300 \times 3600}{40 \times 1000} = 27 km/hr$$

4. $\text{Speed} = \frac{1800M}{1\,\text{min}} = \frac{1800 \times \frac{1}{1000}}{\frac{1}{3600}} = \frac{1800 \times 60}{1000} = 108 km/hr$

5. $\text{Speed} = \frac{1650M}{1\text{hour}50\,\text{min}}$

$1\,\text{hour}\,50\,\text{min} = 1 + \frac{50}{60} = \frac{11}{6} hours$

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

6. Distance = 204km; Time = 3hour

$$\text{Speed} = \frac{204}{3} = \frac{204 \times 1000}{3 \times 3600} = 18.9 km/hr$$

Exercise 15.3

1. Distance = Speed × time
   = 100 × 5 × 60 = 30000m (∵ 5 min = 5 × 60s)

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

3. $\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{20}{30} = \frac{2}{3}$ hour or 40 minutes

4. 30 km/r = speed of scooter

200 m/min speed of horse $= \frac{200 \times \frac{1}{1000}}{1/60} = 200 \times \frac{60}{1000} = 12\,\text{km/hr}$

So, scootrist speed is faster.

5. Anju speed of 25m/min

$$\text{Distance} = 2\text{km}\,500\text{m} = 2500\text{m}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{2500}{25} = 100\,\text{min}$$

$$100\,\text{min} = \frac{100}{60} = 1\,\text{hour}\,40\,\text{minutes}$$

6. $\text{Speed} = 3\frac{1}{2} = \frac{7}{2}\,\text{km/hr}$; $\text{Time} = 30\,\text{min or } 1/2 \text{ hour}$

$$\text{Distance} = \text{Speed} \times \text{Time} = \frac{7}{2} \times \frac{1}{2} = \frac{7}{4} = 1.75km$$

7. $\text{Speed} = 70\text{km/hr}$; $\text{Time} = 2\,\text{hr and } 30\,\text{min} = 2 + \frac{30}{60} = 2\frac{1}{2} = \frac{5}{2}hr$

$$\text{Distance} = \text{Speed} \times \text{Time} = 70 \times \frac{5}{2} = 175km$$

8. $\text{Speed} = 900\,\text{km/hour}$; $\text{Time} = 40\,\text{min or } \frac{40}{60} \text{ or } \frac{4}{6}$

$$\text{Distance} = \text{Speed} \times \text{Time} = 900 \times \frac{4}{6} = 600km$$

Test Paper

1. Distance 2. Speed 3. Time

4. $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{200}{40} = 5m/s$

Multiple Choice Questions

1. (a) $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{520}{65} = 8m/s$

2. (a) $\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{756}{1\,\text{min}\,24\,\text{sec}} = \frac{756}{1 + \frac{24}{60}}$

$$= \frac{756}{84} \times 60 = 9m/s$$

3. (a) Speed $= \frac{1400}{350} = 4m/\text{sec}$

Activity Time

1. Speed = 700 km/hr; Time = 8 hour
   Distance = Speed × Time
   = 700 × 8 = 5600 km
2. Distance = 228km; Time = 6 hour

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{228}{6} = 38km/hr$$

16 Lines, Angles and Circles

Exercise 16.1

1. Infinite 2. Infinite 3. Only one
4. a line segment
5. (a) Vertex O (b) Vertex Y (c) Vertex B
6. (a) XY and YZ (b) PO and OQ
   (c) RS and ST
7. (a) 45° (b) 135°
8. (a) Right (b) Acute (c) Obtuse (d) Obtuse
   (e) Acute (f) Straight

Exercise 16.2

2. (a) $90° - 35° = 55°$ (b) $90° - 55° = 35°$
   (c) $90° - 60° = 30°$ (d) $90° - 78° = 12°$
   (e) $90° - 89° = 1°$
3. (a) $180° - 80° = 100°$ (b) $180° - 72° = 108°$
   (c) $180° - 150° = 30°$ (d) $180° - 90° = 90°$
   (e) $180° - 105° = 75°$

Exercise 16.3

1. (a) equal (b) equal (c) diameter (d) 2

   (e) radius $= \frac{\text{Diameter}}{2} = \frac{4}{2} = 2\text{cm}$

2. (a) X, Z, Y (b) P, Q, O (c) R, S
3. (a) O (b) OC, OA and OB
   (c) AOB (d) DE, AOB
   (e) ACB and AEB (f) 2
   (g) 1/2 (h) M, N, L
4. (a) infinite (b) infinite (c) No (d) Infinite
   (e) Yes
5. Length of diameter is double the length of radius
6. (a) $3\text{cm} = \text{radius} = \frac{3}{2} = 1.5\text{ cm}$

   (b) radius $= \frac{2}{2} = 1\text{m}$ (c) radius $= \frac{4.5}{2} = 2.25\text{ cm}$

7. (a) 6 cm, diameter $= 6 \times 2 = 12$ cm
   (b) 9 cm, diameter $= 9 \times 2 = 18$ cm
   (c) 10.8cm, diameter $= 10.8 \times 2 = 21.6$ cm

Test Paper

I. 1. Semicircle 2. Diameter 3. Two
   4. Complete 5. Circumference 6. Line

II. 1. (b) 100°, 80° 2. (d) A diameter
   3. (a) $90° - 75° = 15°$ 4. (b) Compass
   5. (b) 90° 6. (c) 2 times

III. 1. true 2. false 3. true 4. true
   5. false

IV. (a) Zero angle (iii) 0°
   (b) Right angle (iv) 90°
   (c) Complete (i) 360°
   (d) Obtuse (v) 135°
   (e) Reflex angle (ii) 270°

Activity Time

1. 45°, acute 2. greater than 90°, obtuse 3. 90°, right

17 Triangles and Quadrilaterals

Exercise 17.1

1. $PQ = 5, QR = 3\text{cm}, RP = 4\text{ cm}$
   (a) $(PQ + QR) > RP$
   $8 > 4$
   (b) $(QR + RP) > PQ$
   $(3 + 4) > 5$
   (c) $(RP + PQ) > QR$
   $(4 + 5) > 3 \quad = 9 > 3$
2. (a) $\angle P + \angle Q + \angle R = 180°$
   $60° + 90° + 30°$
   $180° = 180°$
   (b) $\angle P + \angle Q + \angle R = 180°$
   $50° + 50° + 50°$
   $150° \neq 180°$
   (c) $\angle P + \angle Q + \angle R = 180°$
   $90° + 90° + 20° = 200° \neq 180°$
   (d) $\angle P + \angle Q + \angle R = 180°$
   $110° + 90° + 30° = 230° \neq 180°$
3. (a) $\angle B + \angle A + \angle C = 180°$
   $\angle B = 180° - 90° - 30° = 60°$
   (b) $\angle P = 180° - 25° - 90° = 65°$
   (c) $\angle M = 180° - 45° - 45° = 90°$
   (d) $\angle O = 180° - 60° - 60° = 60°$
   (e) $\angle A = 180° - 90° - 45° = 45°$
   (f) $\angle R = 180° - 80° - 50° = 50°$

Exercise 17.2

1. Equalateral triangle $(\therefore AB = BC = CA)$

(b) Scalene triangle ($\therefore AB \neq BC \neq CA$)

(c) Scalene triangle ($\therefore AB \neq BC \neq CA$)

(d) Equilateral triangle ($\therefore AB = BC = CA$)

2. (a) Acute angle triangle (all angles are less than 90°)

(b) Acute angle triangle (all angles are less than 90°)

(c) Right angle triangle ($ABC = 90°$)

(d) Obtuse angle triangle ($BAC = 110°$)

Exercise 17.3

1. (a) True (b) False (c) True (d) True
   (e) False
2. (a) 90° (b) Rhombus (c) Trapezium
   (d) equal (e) 90°
3. (a) AB, BC, CD, DA (b) $\angle A, \angle B, \angle C, \angle D$
   (c) AC, BD (d) DC (e) BC
4. (a) 90° (b) 90° (c) ZY (d) Equal
   (e) 360°
5. (a) Square (b) Rhombus (c) Trapezium (d) Rectangle

Test Paper

I. 1. Three, three
2. Greater
3. 90°
4. Different
5. Equal
6. 360°
7. One

II. 1. (b) 36°, 90°, 54°
2. (c) Figure (✗)
3. (a) A scalene triangle
4. (a) $180° - 50° - 35° = 95°$
5. (a) 60°
6. (b) AB

III. 1. True 2. False 3. False 4. True

Activity Time

Answer = 17

18 Area and Volume

Exercise 18.1

1. Area of square = side × side
   (a) area = $4 \times 4 = 16\ cm^2$
   (b) area = $13 \times 13 = 169\ cm^2$
   (c) area = $6.5 \times 6.5 = 42.25\ cm^2$
   (d) area = $3.5 \times 3.5 = 12.25\ cm^2$
   (e) area = $25.5 \times 25.5 = 650.25 cm^2$
   (f) area = $3\frac{1}{3} \times 3\frac{1}{3} = \frac{10}{3} \times \frac{10}{3} = \frac{100}{9} = 11.11 cm^2$ or $11\frac{1}{9} cm^2$
2. Area of rectangle = length × breadth
   (a) area = $9 \times 8 = 72 m^2$
   (b) area = $15 \times 12 = 180 cm^2$
   (c) area = $20 \times 10 = 200 cm^2$
   (d) area = $20\frac{1}{2} \times 5\frac{1}{2} = \frac{41}{2} \times \frac{11}{2} = 112.75 m^2$
3. Length = 14 cm; breath = 6 cm
   Area of rectangle = length × breath
   = $14 \times 6 = 84\ cm^2$
4. Side = 7 m
   Area of square = Side × side
   = $7 \times 7 = 79\ m^2$
5. Area of a rectangle=length × breadth
   length = 1.5 cm; breadth = 60 cm
   area = $1.5 \times 60 = 90\ cm^2$ or $0.009 m^2$
6. Carpet required = Area of room
   = length × breadth
   = $8 \times 5 = 40 m^2$
7. Area of figure A = $4.5 \times 3 = 13.5 cm^2$
   Area of figure B = $3.5 \times 2 = 7.0\ cm^2$

Area of Total figure $=(13.5+7)\ \text{cm2}=20.5\text{cm}^2$

(b) Area of figure A $= 6\times 2=12\text{cm}^2$

Area of figure B $= 3\times 3=9\ \text{cm}^2$

Area of figure C $= 6\times 2=12\ \text{cm}^2$

Area of total figure $= 12+9+12=33\text{cm}^2$

8. Length = 10m; Breadth = 8m

Area of hall $= 10\times 8=80\text{m}^2$

Cost to cement $= 32\times 80=₹2560$

9. Area of path $= 60\times 1.2=72\text{m}^2$

Area of 1 stone $= 12\times 7.5=90.0\ \text{cm}^2=0.009\text{m}^2$

Number of stones $= \dfrac{\text{Area of path}}{\text{Area of 1 stone}}=\dfrac{72}{0.009}=8000$

Exercise 18.2

1. Volume of cube $=\ell\times\ell\times\ell$

(a) Volume $=6\times 6\times 6=216\text{cm}^3$

(b) Volume $=7.5\times 7.5\times 7.5=421.875\ \text{cm}^3$

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

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

2. Volume of cuboid = length × breadth × height

(a) Volume $=12\times 9\times 4=432\ \text{cm}^3$

(b) Volume $=10.5\times 7.5\times 4=315\ \text{cm}^3$

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

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

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

3. Volume of wooden block $= \ell\times b\times h$

$= 13\times 13\times 13=2197\text{cm}^3$

4. Volume of the packet $= \ell\times b\times h$

$= 10\times 6\times 4=240\text{cm}^3$

5. Volume of soap cake $= \ell\times b\times h$

$= 7\times 5\times 2.5=87.5\ \text{cm}^3$

Volume of cardboard $= 56\times 40\times 25=56000\text{cm}^3$

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

6. Volume of cuboid $= 6\times 3\times 3=54\ \text{cm}^3$

Volume of cube $= 4 \times 4 \times 4 = 64 cm^3$

Volume of cube is greater.

7. Volume of bricks $= 20 \times 10 \times 8 = 1600\ cm^3$

   Volume of wall $= 4 \times 3 \times .22 = 2.64 m^3$

   $$\text{No. of bricks} = \frac{2640000}{1600} = 1650$$

8. Length = 15cm; breadth = 6cm

   Volume of the rectangular box = $4500 cm^3$

   $$\text{Height of the box} = \frac{\text{Volume}}{\text{Length} \times \text{breadth}} = \frac{4500}{15 \times 6} = 50cm$$

9. Length = 50cm; breadth = 45 cm; height = 20cm

   Volume $= l \times b \times h$

   $= 50 \times 45 \times 20 = 45000 cm^3$

   Length = 5cm; breadth = 3cm; height = 1.5cm

   Volume $= l \times b \times h$

   $= 5 \times 3 \times 1.5 = 22.5 cm^3$

   $$\text{Number of matchboxes} = \frac{45000}{22.5} = 2000 \text{ matchboxes}$$

Formative Assessment

I. 1. Width 2. Cuboid

3. 80 ($\therefore 8 \times 5 \times 2 = 80$) 4. 1000000

5. Volume of cuboid $= 8 \times 6 \times 4 = 192 m^3$

   Volume of cube $= 12 \times 12 \times 12 = 1728 m^3$

   $$= \frac{1728}{192} = 9 \text{ times}$$

II. 1. (c) length × breadth

2. (b) A square of length 13m

3. (a) $\text{Length} = \frac{Area}{Breadth} = \frac{208}{16} = 13$ cm

4. (b) perimeter $= 4 \times \text{side} = 164$

   $$\text{Side} = \frac{164}{4} = 41 \text{ cm}$$

Area = $41 \times 41 = 1681$ sq cm

5. (d) 

6. (b) Volume of Cube = $6 \times 6 \times 6 = 216\ cm^3$
Volume of small cube = $2 \times 2 \times 2 = 8\ cm^3$

Number of small cubes = $\frac{216}{8} = 27$

III. 1. False 2. True 3. True

Activity Time

1. Area of shaded region
$= (4 \times 14) + (2 \times 4) + (2 \times 18) + (18 \times 14)$
$= 56 + 8 + 36 + 252$
$= 452$ sq m
2. Area of adjoining figure
$= (3 \times 6) + (5 \times 3)$
$= 18 + 15$
$= 33$ sq cm

19 Temperature

Exercise 19.1

1. (a) Thermometer (b) Clinical thermometer
(c) 100°C (d) 32°F (e) 37°F
2. Celsius

	Temp	–32	×5	÷9	Temp °C in °F
(a)	41°	41–32=9	9×5=45	45÷9	5°C
(b)	77°	77–32=45	45×5=225	225÷9	25°C
(c)	180°	180–32=148	148×5=740	740÷9	82.22°C
(d)	194°	194–32=162	162×5=810	810÷9	90°C

(e) 203° 203–32=171 171×5=855 855÷9 95°C
(f) 245.8° 245.8–32=213.8 213.8×5=1076 1076÷9 118.78°C
(g) 176° 176–32=144 144×5=720 720÷9 80°C

3. **Faraheneit**

	Temp in °C	× 9	÷5	+32	Temp °F
(a)	25°	25×9=225	225÷5=45	45+32	77°C
(b)	50°	50×9=450	450÷5=90	90+32	122°C
(c)	85°	85×9=765	765÷5=153	153+32	185°C
(d)	110°	110×9=990	990÷5=198	198+32	230°C
(e)	70°	70×9=630	630÷5=126	126+32	158°C
(f)	80.5°	80.5×9=724.5	724.5÷5=144.9	144.9+32	176.9°C
(g)	133°	133×9=1197	1197÷5=239.4	239.4+32	271.4°C

4. Maximum temperature = 143°F
   Minimum temperature = 86°F
   Difference = 143° – 86° = 57° F or 31.67°C
5. Temperature = 36°C
   $36 \times 9 = 324 \longrightarrow 324 \div 5 = 64.8$
   $64.8 + 32 = 96.8 \longrightarrow 96.8°F > 36°C$
   another is 36°F
   Object 1 is hotter by 96.8 – 36 = 60.8°F
6. Temperature = 101°F
   So in C it will be 101 – 32 = 69 × 5 = 345 ÷ 9 = 38.33°C
   Temp. above normal = 38.33 – 37 = 1.33°C

20 Bills

M/s Roomy General Store

Bill No. : 12345 Date : 12.9.2012

Name & Address : **Mrs. Rani**

S.No.	Name of Item	Quantity	Rate ₹	P	Amount ₹	P
1.	Handkerchieves	4	8.75		35	

2.	Pairsocks	2 pair	20.00	40
3.	Ribbons	3m	5.50	16.50
4.	Buttons	2 dozen	1.25	2.50
5.	Wool	500gm	300	150
		Total		244.00

Rupees two hundred forty four only. **Sign of owner**

For Roomy General Store

M/s Standard Sweet

Dashmesh Nagar, Meerut

Bill No. : 123 Date : .....

Name & Address : **Mrs. Kamlesh Rastogi, Jwala Nagar**

S.No.	Name of Item	Quantity	Rate ₹ P	Amount ₹ P
1.	Barfi (pista)	2 kg	130	260
2.	namkeen mixture	1 kg	90	90
3.	Rasgulla	25	5	125
4.	Samasos	15	4	60
			Total	535.00

Rupees five hundred thirty five only

Signature

For **Standard Sweets**

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

21 Pictorial Representation of Data

Exercise 21.1

1. (a) Kolkata (b) Chennai
   (c) One crore as difference between Banglore and Mumbai is (10 – 9 = 1)
2. (a) 3000 books
   (b) 2000 books (as Maths = 3500 and Social Studies is 1500 so 3500 – 1500 = 2000)
   (c) 1500 books (as Social Studies = 1500 and Science = 3000 so 3000 – 1500 = 1500)
   (d) 12500 (as 2500 + 2000 + 3500 + 1500 + 3000 = 12500)
3. (a) 45
   (b) in section D, by 50 students
   (c) in section C, by 35 students
   (d) 170 (as 45 + 35 + 50 + 40 = 170)
4. (a) The Times of India (b) The Hindu
   (c) 70,000 (20000 + 25000 + 15000 + 10000 = 70000)
   (d) 10,000

Formative Assessment

I. 1. Birthday of students of class V in different month
   2. January 3. April, July 4. 10

II. 1. (c) 400 (as 50 × 8 = 400)
   2. (a) Spanish (100)
   3. (c) 1200 (400 + 100 + 200 + 350 + 150 = 1200)
   4. (b) 25 (as 25 student is shifted because the difference between Hindi and English is 50)
   5. (c) German (150)