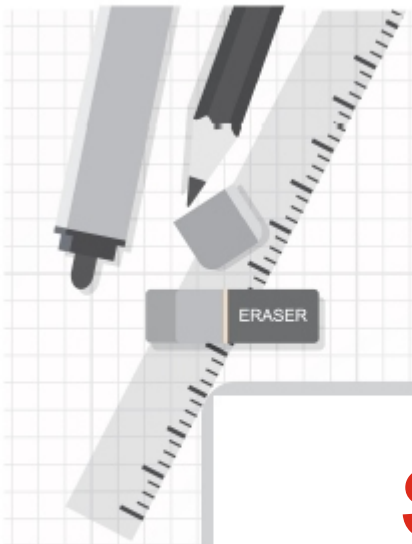
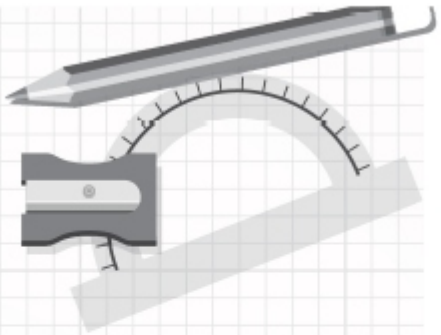
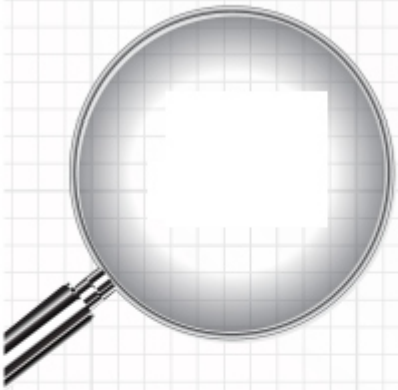


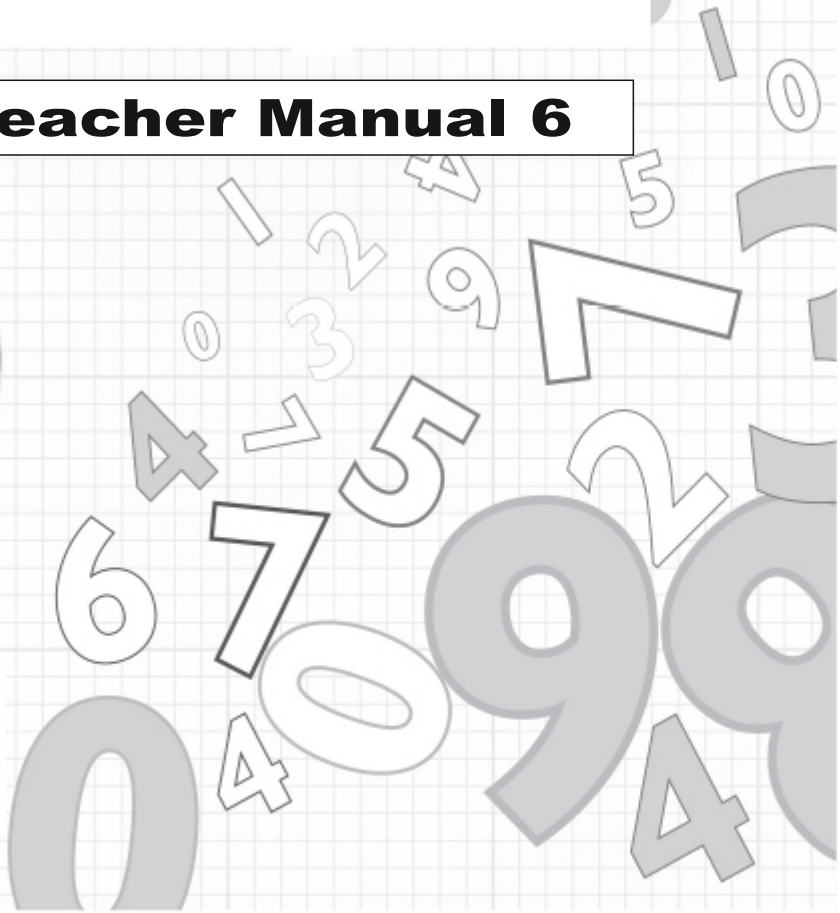
MERAKI
BOOKS



Simplified Mathematics

Teacher Manual 6





BOOK - 6
CHAPTER - 1
EXERCISE- 1.1

1. (i) 1, 12, 45, 670 (ii) 2, 24, 02, 151
(iii) 3, 06, 08, 712 (iv) 19, 03, 08, 020

2. (i) Thirty four thousand and twenty five.
(ii) Seven lakh nine thousand one hundred and fifteen.
(iii) Forty seven crore sixty lakh three hundred and seventeen.
(iv) Six crore eighteen lakh and seven thousand.

3. (i) 4, 57, 400 (ii) 60, 02, 775
(iii) 2, 50, 40, 303 (iv) 60, 60, 60, 600

4. (i) 97, 645, 315 (ii) 20, 048, 421
(iii) 476, 356 (iv) 490, 026, 834

5. In Indian System.
(i) Twelve crore thirty one lakh fifteen thousand and twenty seven.
(ii) Eight crore ninety six lakh forty three thousand and ninety two.

In International System.
(i) One hundred twenty three million one hundred fifteen thousand and twenty seven.
(ii) Eighty nine million six hundred forty three thousand and ninety two.

6. (i) Greatest – 98, 65, 431
Smallest – 13, 45, 689
(ii) Greatest – 98, 64, 320
Smallest – 20, 34, 689

7. (i) $28,369 = 2 \times 10000 + 8 \times 1000 + 3 \times 100 + 6 \times 10 + 9 \times 1$
(ii) $419,247 = 4 \times 100000 + 1 \times 10000 + 9 \times 1000 + 2 \times 100 + 4 \times 10 + 7 \times 1$

8. (i) $7,35,654 < 7,52,412 < 7,54,321 < 7,87,963$
$7,87,963 > 7,54,321 > 7,52,412 > 7,35,654$
(ii) $24,25,682 < 24,78,412 < 25,34,851 < 25,82,093$
$25,82,093 > 25,34,851 > 24,78,412 > 24,25,682$

EXERCISE - 1.2

1. (i) 90 (ii) 420 (iii) 3950 (iv) 4410

2. (i) 700 (ii) 36200 (iii) 13600 (iv) 93600

3. (i) 3000 (ii) 70,000
(iii) 9000 (iv) 4000

4. (i) 15,00,000 (ii) 35,70,000

5. (i) 25,00,000 (ii) 144,00,000

6. Ist number = 1472
IInd number = 22398
IIIrd number = 14772
IVth number = 18164
Rounding each number nearest to thousand =

I	=	1000
II	=	22000
III	=	15000
IV	=	18000
		56000

7. Product of 331×267

$$\begin{array}{r} 330 \\ \times 270 \\ \hline 000 \\ 2310\times \\ 660\times\times \\ \hline 89100 \end{array}$$

Estimated

8. Each medicine box weigh = 5 kg. 200 gm
1 van carry = 260 kg
Then,
5 kg. 200 gm. weight = 1 box has
260 kg. weight = $\frac{1}{5 \text{ kg. } 200 \text{ gm.}} \times 260 \text{ kg}$
[5 kg 200 gm = 5.200 kg.]
$= \frac{1}{5.200} \times 260$
= 50 Boxes

9. Student multiplied = 1234×32
(Estimated) = 9488
he had to = $1234 \times 23 = 28382$
Difference = (39480 – 28382) = 11106

10. Merchant had = ₹ 88592
He ordered for 50 radio for = ₹ 1100 each
Radio purchased for = $50 \times 1100 = 55000$
Estimated money remain with him after the purchases = 88592 – 55000 = ₹ 33592

EXERCISE - 1.3

1. (i) XLVII (ii) CXXIII
(iii) MCMXCVIII (iv) MMCCCXLV

2. (i) 648 (ii) 2549 (iii) 1944 (iv) 1999

3. MMMCMXCIX

4. (i) We can perform adding like.
LXVI + XXXIV
L + X + X + X + X + VI + IV = C
Ans. 50 + 10 + 10 + 10 + 10 + 6 + 4 = 100
(ii) M + C + C + L + VII + V – X = MCCLII
(iii) X + X + X + X + X + L + V + IV = IC

REVIEW EXERCISE

1. (a) **2.** (a) **3.** (b)

4. Place value of 8 in 12876 is = 8 0 0
Face value of 8 in 12867 is = × 8
Product = 6 4 0 0

5. (a)

ANSWER THE FOLLOWING QUESTIONS

1. Sunny has scored = 7280 runs
Rounded off = 7300 nearest hundred
He wishes to complete 10,000 runs = + 20
he needs runs = 10000 – 7300
= 2700 + 20 = 2720

2. The successful candidate registered = 672,500
Rounded off = 6,73,000 (nearest thousand)
His rival secured = 478,500 votes = 4,79000
Margin = 194000

3. The distance between the school and the student's house = 1 km. 875 m. = 1.875 km
She walks both ways = 3.75 km
Rounded off = 4 km
Total distance covered by her in 15 days = 4 × 15 = 60 km

CHAPTER - 2
EXERCISE - 2.1

1. (i)
$$\begin{array}{r} 669702 \\ 154789 \\ +\ 113456 \\ \hline 937947 \end{array}$$
(ii)
$$\begin{array}{r} 43428 \\ +\ 46325 \\ \hline 89753 \end{array}$$
(iii)
$$\begin{array}{r} 59856 \\ -\ 24632 \\ \hline 35224 \end{array}$$
(iv)
$$\begin{array}{r} 48396 \\ -\ 22153 \\ \hline 26243 \end{array}$$
(v)
$$\begin{array}{r} 678 \\ \times\ 345 \\ \hline 3390 \\ 2712\times \\ 2034\times\times \\ \hline 233910 \end{array}$$
(vi)
$$\begin{array}{r} 908 \\ \times\ 765 \\ \hline 4540 \\ 5448\times \\ 6356\times\times \\ \hline 694620 \end{array}$$
(vii)
$$\begin{array}{r} 125 \\ \times\ 10 \\ \hline 000 \\ 125\times \\ \hline 1250 \end{array}$$
(viii)
$$\begin{array}{r} 900 \\ \times\ 7 \\ \hline 6300 \end{array}$$

(ix) $7\overline{)5679}\,(811$
-56
07
-7
09
-7
2

(x) $17\overline{)38468}\,(2262$ Quotient
-34
44
-34
106
-102
48
-34
14 Remainder

EXERCISE - 2.2

1. $2\times 6+3-\frac{4}{2}-5+\frac{20}{5}\times 3+50$
$= 12+3-2-5+4\times 3+50$
$= 12+3-2-5+12+50$
$= 77-7=70$

2. $(3+3-5)\times(15-5)\times 10-99$
$= (6-5)\times 10\times 10-99$
$= 1\times 10\times 10-99$
$= 100-99=1$

3. $50/5-7\times 2+11+3\times 10/2-2+6\times 5$
$= 10-14+11+15-2+30=50$

4. $4+5-7+8\times 5-12\times 8/2+6-3+20/2$
$= 4+5-7+40-48+6-3+10=7$

5. $9\times 9-30/3+5-6+7-2++9\times 9$
$= 81-10+5-6+7-2+81$
$= 156$

6. $(10\times 4-6+7-8/2+3\times 3-14+5-6/3)+1$
$= (40-6+7-4+9+4+5-2)+1$
$= (53)+1=54$

7. $(2\times 2+2\times 2+4)/8+(5\times 5-3\times 3-2\times 2)/3$
$= (4+4+4)/8+(25-9-4)/3$
$= 12/8+12/3$
$= \frac{3}{2}+\frac{4}{1}=\frac{11}{2}$

8. $(5 \times 5 - 25/5) + 12 - 4 + 5 + (9 - 3 \times 2)$
$= (25 - 5) + 12 - 4 + 5 + (3)$
$= 20 + 12 - 4 + 5 + 3$
$= 36$

9. $40 - [16 - \{9 - (15 - \overline{8 - 2})\}]$
$= 40 - [16 - \{9 - (15 - 6)\}]$
$= 40 - [16 - \{9 - 9\}]$
$= 40 - [16 - 0]$
$= 40 - 16 = 24$

10. $34 - [26 - \{13 \times 6 - 9 + 1\} + 14 \div 7]$
$= 34 - [26 - \{78 - 8\} + 2]$
$= 34 - [26 - 70 + 2]$
$= 76$

11. $58 - [28 - \{16 \div (27 + 3 \times 2 - 17)\}]$
$= 58 - [28 - \{16 \div 16\}]$
$= 58 - 27$
$= 31$

12. $[(36 \times 10) \div (5 \times 3 - 5)] \div [23 - (-2)\{[16 - (56 - 33)\}]$
$= [360 \div 10] \div [23 + 2\{16 - 23\}]$
$= 36 \div [23 + 2(-7)]$
$= 36 \div 9$
$= 4$

13. $23 + 4[2 - \{4 + (7 \times 2 - 6 - 5) - 2\} + 3]$
$= 23 + 4[2 - \{4 + 3 - 2\} + 3]$
$= 23 + 4[2 - 5 + 3]$
$= 23 + 4[0]$
$= 23$

14. $16 + [7 + \{(3 + 7) - \overline{5 - 3}\}]$
$= 16 + [7 + \{(3 + 7) - 2\}]$
$= 16 + [7 + \{8\}]$
$= 16 + [15]$
$= 31$

EXERCISE - 2.3

1. (i) $1 = 1^{1+1} = 2$
$= 1 + 3 = 2^{2+1} = 3$
$= 1 + 3 + 5 = 3^{2+1} = 4$
$= 1 + 3 + 5 + 7 = 4^{2+1} = 5$
$= 1 + 3 + 5 + 7 + 9 = 5^2.$
$\therefore = 7 + 2 = 9$

(ii) $1^2 + 2 = 3$
$= 1^2 + 2^2 + 3 = 8$
$= 1^2 + 2^2 + 3^2 + 4 = 18$
$= 1^2 + 2^2 + 3^2 + 4^2 + 5 = 35$

REVIEW EXERCISE

1. (i) $13 \times 2 + 7 \div 2 - 3 + 4$
$= 13 \times 2 + \frac{7}{2} - 3 + 4$
$= 26 + \frac{7}{2} - 3 + 4$
$= 30 + \frac{7}{2} - 3$
Making Denominator equal
$= \frac{60 + 7 - 6}{2} = \frac{61}{2} = 30.5$

(ii) $7 \times 4 - \overline{9 \div 3} + 2 \times 8 - 4$
$= 7 \times 4 - 3 \times 2 \times 8 - 4$
$= 28 - 3 + 16 - 4$
$= 44 - 3 - 4$
$= 37$

(iii) $16 \div 4 + 3 \times 8 - 2 \times 5$
$= 4 + 3 \times 8 - 2 \times 5$
$= 4 + 24 - 10$
$= 28 - 10$
$= 18$

(iv) $(3 \times 2 + 5) \div 2 \times 4 - 3 \times 2$
$= (6 + 5) \div 2 \times 4 - 3 \times 2$
$= \frac{11}{2} \times 4 - 6 = 22 - 6 = 16$

2. 5^2,
$7 + 9 + 11 = 6^2$

CHAPTER - 3
EXERCISE - 3.1

1. (i) 1, 3, 7, 21
(ii) 1, 2, 3, 4, 6, 9, 12, 36
(iii) 1, 2, 3, 4, 6, 8, 12, 48
(iv) 1, 3, 9, 11, 33, 99

2. (i) 3, 6, 9, 12, 15
(ii) 5, 10, 15, 20, 25

(iii) 9, 18, 27, 36, 45

(iv) 12, 24, 36, 48, 60

3. Odd: 135, 9427, 78965 Even; 342,1112, 5008, 8134, 10006

4. (i) 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

(ii) 29, 31, 37, 41, 43, 47, 53, 59

(iii) 37, 41, 43, 47

(iv) 79, 83, 89

5. 10, 20, 30, 40, 50, 60, 70, 80, 90

6. 12, 24, 36

7. 4, 6, 8, 9, 10, 12, 14, 15, 16, 18

8. 49, 48, 46, 45, 44

9. 2, 3, 5, 7, 11, 13

EXERCISE - 3.2

1. Even Number – The number has last digit 0 or 2, 4, 6, 8 called even number

Odd number – Otherwise it is called odd number

2. divisible by 3 – (i), (vi), (vii), (x)

divisible by 4 – (ii), (iv), (v)

divisible by 5 – (iii), (viii), (ix), (x)

divisible by 6 – (i)

divisible by 7 – _____

divisible by 10 – (iii), (viii), (ix)

3. (i) 52 divisible by – 8

(ii) 333 divisible by – 9

(iii) 440 divisible by – 8

(iv) 904 divisible by – 8

(v) 56565 divisible by – 9

(vi) 2968 divisible by – 8

(vii) 6669 divisible by – 9

(viii) 11241 divisible by – 9

(ix) 16920 divisible by – 8

(x) 11088 divisible by – 8

4. Divisible by 11 – (iii), (iii), (vi), (viii)

5. Divisible by 12 – (i), (ii), (iv), (vi), (viii), (ix)

Divisible by 13 – (i)

EXERCISE - 3.3

1. (i) $6 = 2 \times 3$; $2 = 2$

(ii) $56 = 2 \times 28$; $28 = 2 \times 14$; $14 = 2 \times 7$

2. (i)

2	20
2	10
5	5
	1

Prime factors of 20 are $= 2 \times 2 \times 5$

(iv)

3	225
3	75
5	25
5	5
	1

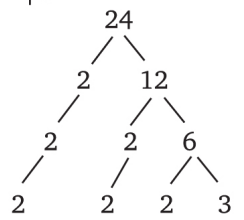
Prime factors of 225 are $= 3 \times 3 \times 5 \times 5$

(ix)

2	5250
3	2625
5	875
5	175
5	35
7	7
	1

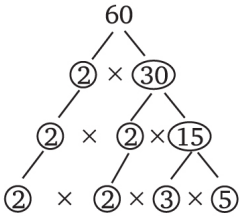
Prime factors of 5250 are $= 2 \times 3 \times 5 \times 5 \times 5 \times 7$

3. (i)



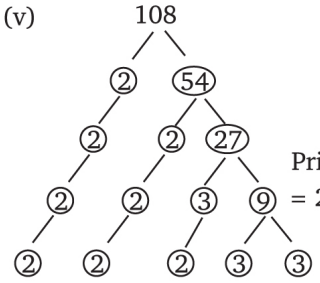
Prime factors of 24 $= 2 \times 2 \times 2 \times 3$

(iii)



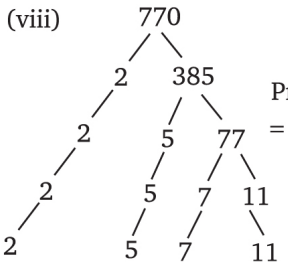
Prime factors of 60 $= 2 \times 2 \times 3 \times 5$

(v)



Prime factors of 108 $= 2 \times 2 \times 3 \times 3 \times 3$

(viii)



Prime factors of 770 are $= 2 \times 5 \times 7 \times 11$

EXERCISE - 3.4

1. (i) Common factors → 6 and 10

6 = 1, 2, 3, 6

10 = 1, 2, 5

= 2 Ans.

(ii) $8 = 2 \times 2 \times 2$

$12 = 2 \times 2 \times 3$

common = 2, 4

(iii) 5 (iv) 2, 3, 6 (v) 5, 10

(vi) 28 and 36

28 = 1, 2, 4, 7, 28

36 = 1, 2, 3, 4, 6, 9, 12, 36

= 2, 4 Ans.

2. (i)

2 | 24
2 | 12
2 | 6
3 | 3
1

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

2 | 36
2 | 18
3 | 9
3 | 3
1

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

HCF $= 2 \times 2 \times 3 = 12$

(viii)

2 | 22
11 | 11
1

$22 = 2 \times 11$

2 | 44
2 | 22
11 | 11
1

$44 = 2 \times 2 \times 11$

2 | 66
3 | 33
11 | 11
1

$66 = 2 \times 3 \times 11$

HCF $= 2 \times 11 = 22$

3. (iii)

2 | 36
2 | 18
3 | 9
3 | 3
1

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

2 | 54
3 | 27
3 | 9
3

$54 = 2 \times 3 \times 3 \times 3$

HCF $= 2 \times 3 \times 3 = 18$

(viii)

2 | 22
11 | 11
1

$22 = 2 \times 11$

5 | 55
11 | 11
1

$55 = 5 \times 11$

2 | 110
5 | 55
11 | 11
1

$110 = 2 \times 5 \times 11$

HCF = 11

(ix)

2 | 56
2 | 28
2 | 14
7 | 7
1

3 | 189
3 | 63
3 | 21
7 | 7
1

5 | 175
5 | 35
7 | 7
1

$56 = 2 \times 2 \times 2 \times 7$

$189 = 3 \times 3 \times 3 \times 7$

$175 = 5 \times 5 \times 7$

HCF = 7

4. (i)

```
72) 184 (2
   - 144
    40) 72 (1
      - 40
       32) 40 (1
         - 32
          8) 32 (4
           - 32
            0
```

= 8 Ans.

(ii) 7 (iii) 23 (iv) 2

(v)

```
405) 513 (1
   - 405
    108) 405 (3
       - 324
         81) 108 (1
           - 81
            27) 81 (3
             - 81
              0
```

= 27 Ans.

(vi) 4 (vii) 2

(viii)

```
155) 341 (2
   - 310
     31) 155 (5
       - 155
         0
```

```
31) 1302 (42
  - 124↓
    62
  - 62
    0
```

= 31 Ans.

(ix) 399, 665, 1463

```
399) 665 (1
   - 399
    266) 399 (1
       - 266
        133) 266 (2
           - 266
             0
```

```
133) 1463 (42
  - 133↓
    133) 133 (1
       -133
         0
```

= 133 Ans.

EXERCISE - 3.5

1. (i) Multiples of 2 = 2, 4, 6, 8 …
Multiples of 4 = 4, 8, 12, 16 …
Least common multiples = 4

(v) Multiples of 6 = 6, 12, 18, 24 …
Multiples of 9 = 9, 18, 27, 36 …
L.C.M. = 18

(ix) Multiples of 3 = 3, 6, 9, 12, 15, 18
Multiples of 6 = 6, 12, 18 ……
Multiples of 9 = 9, 18, 27 ……
L.C.M. = 18

2. (i)

2 | 18
3 | 9
3 | 3
| 1

2 | 24
2 | 12
2 | 6
3 | 3
| 1

$18 = 2 \times 3 \times 3$
$24 = 2 \times 2 \times 2 \times 3$
$= 2^3 \times 3^2$ Highest notation
$= 8 \times 9 = 72$

(ii)

2 | 16
2 | 8
2 | 4
2 | 2
| 1

2 | 40
2 | 20
2 | 10
5 | 5
| 1

$16 = 2 \times 2 \times 2 \times 2$
$40 = 2 \times 2 \times 2 \times 5$
$= 2^4 \times 5$
$= 16 \times 5 = 80$

(iii) 180 (iv) 308 (v) 160

(vi)

2 | 20
2 | 10
5 | 5
| 1

3 | 135
3 | 45
3 | 15
5 | 5
| 1

$20 = 2 \times 2 \times 5$
$135 = 3 \times 3 \times 3 \times 5$
$= 2^2 \times 3^3 \times 5^1$
$= 4 \times 27 \times 5$
$= 540$

(vii) 225 (viii) 252 (ix) 144

(x)

5 | 25
5 | 5
| 1

5 | 35
7 | 7
| 1

3 | 45
3 | 15
5 | 5
| 1

$25 = 5 \times 5$ $35 = 5 \times 7$
$45 = 3 \times 3 \times 5$
$= 5^2 \times 3^2 \times 7 = 1575$

(xi) 315 (xii) 150

3. (i)

2 | 27, 81, 54
3 | 27, 81, 27
3 | 9, 27, 9
3 | 3, 9, 3
3 | 1, 3, 1
| 1, 1, 1

L.C.M.
$= 2 \times 3 \times 3 \times 3 \times 3$
$= 162$

(ii) 630 (iii) 7700 (iv) 2520

(v)

2 | 112, 120, 150
2 | 56, 60, 75
2 | 28, 30, 75
2 | 14, 15, 75
3 | 7, 15, 25
5 | 7, 5, 25
5 | 7, 1, 5
7 | 7, 1, 1
| 1, 1, 1

L.C.M. $= 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 7$
$= 8400$

(vi)

2 | 144, 180, 300
2 | 72, 90, 150
2 | 36, 45, 75
3 | 18, 45, 75
2 | 6, 15, 25
3 | 3, 15, 25
5 | 1, 5, 25
5 | 1, 1, 5
| 1, 1, 1

L.C.M. $= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$
$= 3600$

4. HCF of two numbers = 105
Two numbers are = 525 and 1155
according to formula
HCF × LCM = Product of two numbers
105 × LCM = 525 × 1125

LCM $= \frac{525 \times 1155}{105}$

$= 5775$

5. HCF × LCM = Product of two numbers

$HCF \times 23100 = 660 \times 2100$

$HCF = \frac{660 \times 2100}{23100}$

$HCF = 60$

6. HCF × LCM = Product of 2 numbers

$29 \times 3045 = 435 \times$ IInd number

$\frac{29 \times 3045}{435} =$ IInd

IInd number = 203

7. HCF × LCM = Product of two numbers

$= 16 \times LCM = 3328$

$LCM = \frac{3328}{16} = 208$

EXERCISE - 3.6

1.

2	108, 180, 216
2	54, 90, 108
2	27, 45, 54
3	27, 45, 27
3	9, 15, 9
3	3, 5, 3
5	1, 5, 1
	1, 1, 1

L.C.M.
$= 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5$
$= 1080$

2. Hint → Find L.C.M. of 5, 15 and 25 = 75 Ans.

3.

```
27) 45 (1
  - 27
   18) 27 (1
     - 18
      9) 18 (2
        - 18
          0
```

```
9) 63 (7
 - 63
   0
```

So the greatest measure of a string will be = 9 m

4.

2	4, 6, 9
2	2, 3, 9
3	1, 3, 9
3	1, 1, 3
	1, 1, 1

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

5. Dimensions of paper are = 18 cm × 24 cm

Square pattern cover = HCF of 18 and 24

```
18) 24 (1
  - 18
    6) 18 (3
      - 18
        0
```

Thus, the largest possible area will be

$= 6 \times 6 = 36\,cm^2$

Number of square pattern $= \frac{18 \times 24}{6 \times 6} = 12$

6. So, they will step off again together after = 23940 cm
= 239.40 m

2	70, 76, 90
2	35, 38, 45
3	35, 19, 45
3	35, 19, 15
5	35, 19, 5
7	7, 19, 1
19	1, 19, 1
	1, 1, 1

7.

2	850
5	425
5	85
17	17
	1

2	680
2	340
2	170
5	85
17	17
	1

$850 = 2 \times 5 \times 5 \times 17$
$680 = 2 \times 2 \times 5 \times 17 \times 2$
H.C.F. = 170

8. Find the H.C.F. 416, 364 and 312

```
364) 416 (1
   - 364
     52) 364 (7
       - 364
         0
```

```
52) 312 (6
  - 312
    0
```

52 students

9.

2	16, 24, 40
2	8, 12, 20
2	4, 6, 10
2	2, 3, 5
3	1, 3, 5
5	1, 1, 5
	1, 1, 1

$= 2 \times 2 \times 2 \times 2 \times 3 \times 5$
= 240 seconds
after = 4 minutes
at 2.04 p.m.

10. 9 met = 9 × 100 = 900 cm
1.25 met = 1.25 × 100 = 125 cm
H.C.F. = 25 cm = 5 × 5 cm
so length = 5 cm
width = 5 cm

$$\begin{array}{r|l} 125 & 900 \ (7 \\ -875 & \\ \hline 25 & 125 \ (5 \\ -125 & \\ \hline 0 & \end{array}$$

CHAPTER - 4
EXERCISE - 4.1

1. (i) 37, 35 (ii) 75, 73 (iii) 200, 198
(iv) 351, 349 (v) 790, 788

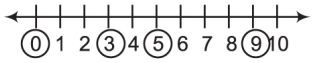
2. 510, 511, 512

3. 1, 2, 3, 4, 5

4. (i) 435 (ii) 989 (iii) 1010 (iv) 5342
(v) 10100 (vi) 13971

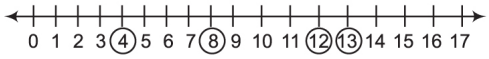
5. (i) 10, 11, 12, 13, 14
(ii) 0, 1, 2, 3, 4, 5, 6
(iii) 16, 17, 18, 19, 20.....
(iv) 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98
(v) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
(vi) 0, 1, 2, 3, 4, 5
(vii) 57, 58, 59, 60, 61, 62, 63, 64
(viii) 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93
(ix) 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34
(x) 48, 49, 50, 51

6. (i)



Thus, whole numbers are 0, 3, 5, 9

(ii)

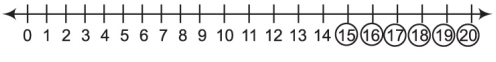


Thus, whole numbers are 4, 8, 12, 13

(iii)

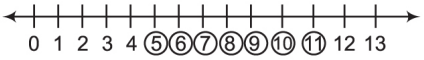
Thus, whole numbers are 0, 1, 2, 3, 4

(iv)



Thus, whole numbers are 15, 16, 17, 18, 19, 20.....

(v)

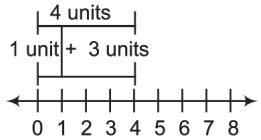


Thus whole numbers are 5, 6, 7, 8, 9, 10, 11

(vi)

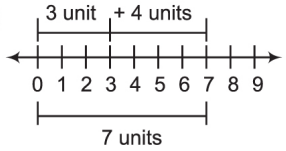
Thus, whole numbers are 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

7. (i)



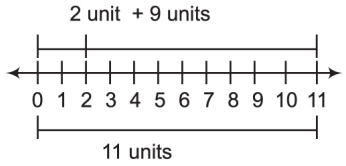
Thus sum of 1 and 3 is 3 + 1 = 4 units

(ii)



Thus sum of 3 and 4 is 3 + 4 = 7

(iii)



Thus, sum of 2 and 9 is 2 + 9 = 11

EXERCISE - 4.2

1. (i) 1218 (ii) 852 (iii) 1167
(iv) 4896 (v) 5929 (vi) 3192
(vii) 2447 (viii) 1335 (ix) 1556

2. (i)

$$\begin{array}{r} \boxed{c}\,4\,3 \\ +\,2\,5\,\boxed{a} \\ \hline 9\,\boxed{b}\,7 \end{array}$$

3 + a = 7
a = 7 − 3
a = 4
4 + 5 = b
b = 9
c + 2 = 9
c = 9 − 2
c = 7

(ii)

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

(iii)

$$\begin{array}{r} \boxed{c}\,2\,3 \\ 2\,\boxed{b}\,4 \\ +3\,4\,\boxed{a} \\ \hline 7\,5\,2 \end{array}$$

3 + 4 + 9 = 2
7 + a = 2
a = 2 − 7
a = 12 (1 carry) − 7
a = 5
2 + b + 4 + 1 carry = 5
b + 7 = 5

b = 5 − 7
b = 15 (1 carry) − 7
b = 8
c + 2 + 3 + 1 (carry) = 7
c + 6 = 7
c = 7 − 6
c = 1

(iv) $\begin{array}{r} \boxed{6}\,9\;7 \\ -\,5\;5\,\boxed{3} \\ \hline 1\,\boxed{4}\,4 \end{array}$ (v) $\begin{array}{r} 2\,\boxed{3}\,6 \\ -\,\boxed{1}\,6\,\boxed{0} \\ \hline \boxed{0}\,7\;6 \end{array}$

(vi) $\begin{array}{r} 6\;3\;2\,\boxed{a} \\ -\,\boxed{d}\,\boxed{c}\,\boxed{b}\;9 \\ \hline 2\;0\;1\;4 \end{array}$ a − 9 = 4
a = 4 + 9
a = 13
carry
2 − b = 1 3 − c = 0
− b − 1 = 1 − 2 − c = − 3
− 1 − b = − 1 c = 3
− b = − 1 + 1
b = 0
carry
6 − d = 2
− d = 2 − 6
− d = − 4
d = 4

3. 0 + 1 + 2 + 3 + 4 = 10

4. Smallest three-digit number = 100
largest two-digit number = 99
sum = 100 + 99 = 199

5. 1 **6.** 1 − 0 = 1

EXERCISE - 4.3

1. (i) 14 + ❑ = 9 + 14
according to commutative lows
a + b = b + a
So, 14 + 9 = 9 + 14
= 9 Ans.
(ii) Associative law
(1 + $\boxed{4}$) + 2 = $\boxed{1}$ + (4 + 2)
(iii) ($\boxed{1}$ + $\boxed{3}$) + 5 = 1 + (3 + $\boxed{5}$) assoc.
(iv) 4 + 11 = $\boxed{11}$ + $\boxed{4}$ comm.
(v) (5 + 7) + 9 = ❑ + (❑ + ❑)
according to associative laws
(a + b) + c = a + (b + c)
So, (5 + 7) + 9 = 5 + (7 + 9)
(vi) $\boxed{6}$ + 7 = $\boxed{7}$ + 6 comm.
(vii) 11 + $\boxed{13}$ = 13 + $\boxed{11}$ comm.
(viii) (5 + ❑) + ❑ = ❑ + (10 + 15)
according to associative laws
(a + b) + c = a + (b + c)
(5 + 10) + 15 = 5 + (10 + 15)

2. (i) 5 + 3 = 3 + 5
8 = 8 ∵ a + b = b + c
commutative
(ii) Comm. (iii) Comm. (iv) Asso.
(v) 1 + (2 + 3) = (1 + 3) + 2
1 + 5 = 4 + 2
6 = 6 ∵ a + (b + c) + (a + b) + c
associative
(vi) Comm. (vii) Asso. (viii) Asso.
(ix) 123 + (231 + 321) = (123 + 231) + 321
123 + (552) = (354) + 321
675 = 675 ∵ a + (b + c) + (a + b) + c
associative law of addition

EXERCISE - 4.4

1. (i) $\begin{array}{r} 8\;7 \\ \times\,6\;2 \\ \hline 1\;7\;4 \\ 5\;2\;2\times \\ \hline 5\;3\;9\;4 \end{array}$ (ii) 5369 (iii) $\begin{array}{r} 1\;0\;1 \\ \times\,7\;7 \\ \hline 7\;0\;7 \\ 7\;0\;7\times \\ \hline 7\;7\;7\;7 \end{array}$

(iv) 68400 (v) $\begin{array}{r} 7\;6\;2 \\ \times\,3\;0\;9 \\ \hline 6\;8\;5\;8 \\ 0\;0\;0\times \\ 2\;2\;8\;6\times\times \\ \hline 2\;3\;5\;4\;5\;8 \end{array}$ (vi) 31248

(vii) $\begin{array}{r} 2\;4\;6\;8 \\ \times\,1\;1\;1 \\ \hline 2\;4\;6\;8 \\ 2\;4\;6\;8\times \\ 2\;4\;6\;8\times\times \\ \hline 2\;7\;3\;9\;4\;8 \end{array}$ (viii) 166911 (ix) $\begin{array}{r} 1\;5\;7\;2 \\ \times\,2\;4\;1 \\ \hline 1\;5\;7\;2 \\ 6\;2\;8\;8\times \\ 3\;1\;4\;4\times\times \\ \hline 3\;7\;8\;8\;5\;2 \end{array}$

2. (i) $11\overline{)748}\,(68$
$-\,66\downarrow$
88
$-\,88$
0
(ii) 125 (iii) 223

(iv)
$$\begin{array}{r|l} 7 & 7854 \\ -7\downarrow & \\ \hline 8 & \\ -7\downarrow & \\ \hline 15 & \\ -14\downarrow & \\ \hline 14 & \\ -14 & \\ \hline 0 & \end{array} \quad 1122$$

(v)
$$\begin{array}{r|l} 52 & 6136 \\ -52\downarrow & \\ \hline 93 & \\ -52\downarrow & \\ \hline 416 & \\ -416 & \\ \hline 0 & \end{array} \quad 118$$

(vi) 121

(vii)
$$\begin{array}{r|l} 111 & 6216 \\ -555\downarrow & \\ \hline 666 & \\ -666 & \\ \hline 0 & \end{array} \quad 56$$

(viii) 234

(ix)
$$\begin{array}{r|l} 135 & 14985 \\ -135\downarrow & \\ \hline 148 & \\ -135\downarrow & \\ \hline 135 & \\ -135 & \\ \hline 0 & \end{array} \quad 111$$

3. Smallest 4 digit number = 1000
Greatest 2 digit number = 99
Product = 1000 × 99 = 99000

4. Smallest 3 digit number = 100
divisible by 16

$$\begin{array}{r|l} 16 & 100 \\ -96 & \\ \hline 4 & \end{array} \quad 6$$

So, if we make the remainder as it might be completely divisible by 16 we have to add 12 to 4 = 16
So the smallest number would be 112 which is completely divisible by 16

5. Hint = largest 3 digit number
= 999 ÷ 24 = 984

EXERCISE - 4.5

1. (i) ❑ × 2 = ❑ × 4 (ii) 7 × 9 = 9 × 7
$\because a \times b = b \times a$ (Commutative law)
$\therefore 4 \times 2 = 2 \times 4$

(iii) $3 \times (9 - 6) = 3 \times 9 - 3 \times$ ❑
$\because a \times (b - c) = a \times b - a \times c$
Distributive law of subtractions
so, $3 \times (9 - 6) = 3 \times 9 - 3 \times 6$

(iv) $5 \times 6 = 6 \times \boxed{5}$

(v) $2 \times (1 + 2) = \boxed{2} \times 1 + 2 \times 2$

(vi) $7 + (1 + 6) = (7 + 1) \boxed{+} 6$

(vii) $3 \times (2 \times 5) = \boxed{5} \times \boxed{2} \times \boxed{3}$

(viii) $1 \times \boxed{11} - \boxed{12} = \boxed{1} \times 11 - \boxed{1} \times 12$

(ix) ❑ × (11 × 9) = (2 × 11) × ❑
$a \times (b \times c) = (a \times b) \times c$ (Associative law)
so, $2 \times (11 \times 9) = (2 \times 11) \times 9$

(x) 9 × (❑ + 4) = ❑ × 5 + ❑ × ❑
$a \times (b + c) = a \times b + a \times c$
(Distributive law of addition)
so, $9 \times (5 + 4) = 9 \times 5 + 9 \times 4$

2. (i) 3 + 2 = 2 + 3
5 = 5 (Commutative law)

(ii) 1 × (3 × 2) = (1 × 3) × 2
1 × 6 = 3 × 2
6 = 6 (Associative law)

(iii) Asso. (iv) Com. (v) Distributive

(vi) Asso. (vii) Dis. (viii) Dis.

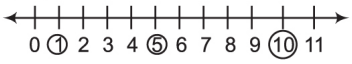
(ix) 25 × (10 + 8) = (25 × 10) + (25 × 8)
25 × 10 + 25 × 8 = 250 + 200
250 + 200 = 450
450 = 450(Distributive law of addition)

(x) 100 × (11 + 13) = (100 × 11) + (100 × 13)
= 100 × 11 + 100 + 13 = 1100 + 1300
= 1100 + 1300 = 1100 + 1300
2400 = 2400 (Distributive law of addition)

REVIEW EXERCISE

1. 0, 1, 2, 3.

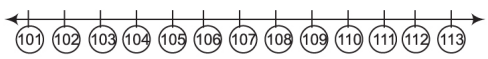
2. (i)



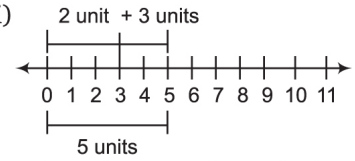
Thus, the required number on number line 1, 5, 10.

(ii)

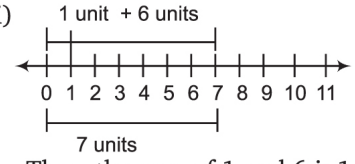
Thus, the required number on number line 0, 1, 2, 3, 4, 5, 6

(iii) 

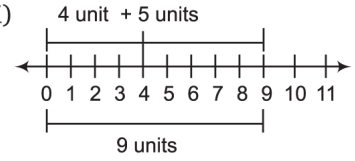
Thus, the required number on number line 101, 102, 103, 104, 105, 105, 107, 108, 109, 110, 111, 112, 113.....

3. (i) 

Thus, the sum of 2 and 3 is 2 + 3 = 5 units.

(ii) 

Thus, the sum of 1 and 6 is 1 + 6 = 7 units.

(iii) 

Thus the sum of 4 and 5 is 4 + 5 = 9 units

4. (i) 1000 (ii) 3579 (iii) 6565 + 1144 = 7709

(iv) 211 (v) 5504

(vi) 9999 − 999 = 9000 (vii) 110, 889 (viii) 5535

(ix) 1122 × 786 = 6732 + 8976× + 7854×× = 881892

(x) 118 (xi) 121

(xii) 123) 15129 (123
− 123↓
282
− 246↓
369
− 369
0

5. (i) $11 \times (28 + 72) = (11 \times 28) + (11 \times 72)$

$11 \times 100 = 308 + 792$

$= 1100 = 1100$

L.H.S. = R.H.S.

Distributive Law

(ii) $842 + 248 = 248 + 842$

$1090 = 1090$

L.H.S. = R.H.S.

$\therefore$ Commutative Law

(iii) $333 \times 111 = 111 \times 333$

$36963 = 36963$

L.H.S. = R.H.S. [$\because a \times b = b \times a$]

commutative law of multiplication

(iv) $100 \times (45 - 21) = (100 \times 45) - (100 \times 21)$

$100 \times 24 = 4500 - 2100$

$2400 = 2400$

L.H.S. = R.H.S.

$\because$ $a \times (b - c) = (a \times b) - (a \times c)$

Distributive law of subtraction

(v) $48 + (37 + 55) = (48 + 37) + 55$

$48 + 92 = 85 + 55$

$140 = 140$

L.H.S. = R.H.S.

Associative Law

(vi) $12 \times (13 \times 14) = (12 \times 13) \times 14$

$12 \times (182) = (156) \times 14$

$2184 = 2184$

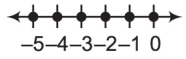
L.H.S. = R.H.S.

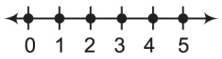
$\because$ $a \times (b \times c) = (a \times b) \times c$

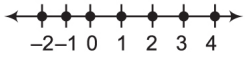
Associative law of multiplication

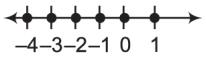
CHAPTER - 5

EXERCISE - 5.1

1. (i) 

(ii) 

(iii) 

(iv) 

2. (i) > (ii) < (iii) < (iv) <
(v) > (vi) <

3. –101 **4.** –199

5. (i) 3,4,5 (ii) –1, 0, 1, 2
(iii) –5, – 4, – 3, – 2, –1, 0
(iv) –2, – 1, 0, 1, 2, 3

6. (i) 1, 2 (ii) –1, – 2 (iii) –2, – 1

7. 1, – 1, – 2 **8.** –1, 0

9. (i) 3 (ii) 8 (iii) 5 (iv) 9
(v) 6 (vi) 2

10. 0

11. (i) Ascending order : –4, – 2, 0 1
Descending order : 1, 0, – 2, – 4
(ii) Ascending : –4, – 3, 0, 1
Descending : 1, 0, – 3, – 4
(iii) Ascending order : –3, – 2, 2, 3
Descending : 3, 2, – 2, – 3

EXERCISE - 5.2

1. Do yourself

2. (i) (+ 5) + (+ 2)
= + (5 + 2)
= 7
(ii) 16 (iii) –10 (iv) – 16 (v) 8
(vi) – 1 (vii) – 4 (viii) – 6 (ix) – 3
(x) (– 13) + (– 11)
= (– 13 – 11)
= – 24
(xi) 35 (xii) – 46

3. (i) + 3 + (– 6) = ❑
Solution
= – (6 – 3) = – 3 $\left[\because |-6| = 6,\ |3| = 3\right]$
(ii) 10 (iii) – 15
(iv) (+ 5) + ❑ = (+ 7)
Solution
= 5 + ❑ = 7
= ❑ = 7 – 5
= ❑ = 2
(v) – 11 (vi) 19
(vii) (+ 100) + ❑ = (+ 50)
= ❑ = 50 – 100
= ❑ = – 50
(viii) – 100

4. (i) [(+ 2) + (+ 3)] + (+ 4)
= [+ (2 + 3)] + (+ 4)
= + (5 + 4)
= + 9 or 9
(ii) – 7
(iii) [(+ 3) + (5)] + (– 1)
= [+ (3 + 5)] + (– 1)
= + 8 + (– 1)
= + (8 – 1) = 7
(iv) – 4 (v) 100
(vi) (– 18) + [(25) + (– 30)]
= (– 18) + [– (30 – 25)]
= (– 18) + (– 5)
= – (18 + 5)
= – 23

EXERCISE - 5.3

1. (i) (+ 4) – (+ 1)
= (4 – 1)
(ii) 3 (iii) – 4
(iv) (– 7) – (– 9)
= + (9 – 7)
= + 2
(v) 19
(vi) (– 18) – (+ 7)
= – (18 + 7)
= – 25
(vii) – 38 (viii) – 21 (ix) 90 (x) – 32
(xi) (+ 102) – (– 133)
= (133 + 102)
= 235
(xii) – 30

2. (i) (+ 2) – ❑ = (– 7)

$= - \square = (-7) - 2$

$= - \square = -9$

$= \square = 9$

(ii) $= 4$ (iii) $+2$

(iv) $(+16) - \square = (+11)$

$= - \square = 11 - 16$

$= - \square = -5$

$= \square = 5$

(v) $+6$

(vi) -16

3. (i) $[(-8) - (-6)] - (-4)$

$= [-(8-6)] - (-4)$

$= -2 - (-4)$

$= (4-2) = 2$

(ii) $[(+11) - (+5)] - (+19)$

$= [+(11-5)] - 19$

$= 6 - 19$

$= -13$

(iii) 22

(iv) $[(-18) - (+12)] - (-19)$

$= [-(18+12)] - (-19)$

$= [-30] + 19$

$= -11$

(v) $[(+23) - (-9)] - (+29)$

$= [23+9] - (+29)$

$= [(32)] - 29$

$= 3$

(vi) 25

4. $(+111) - (-111)$

$= (+111 + 111)$

$= 222$

5. $a + b = -99$

$a = -66$

$b = ?$

$= a + b = -99$

$= -66 + b = -99$

$= b = -99 + 66$

$= b = -33$

EXERCISE - 5.4

1. (i) -18 (ii) -9 (iii) -16

(iv) $\square \times (+11) = 121$

$= \square = \frac{121}{11}$

$= \square = 11$

(v) -8

(vi) $-25 \times \square = -75$

$= \square = \frac{+75}{+25}$

$= \square = 3$

(vii) $(-) \times (-) = +$

(viii) $(+) \times (-) = \square$

$= -$

2. (i) $+12$ (ii) $+12$ (iii) -25 (iv) -56

(v) $+36$ (vi) -24 (vii) $+50$

(viii) $+11, -7$

$= 11 \times -7 = -77$

(ix) $+72$ (x) $+72$ (xi) -150 (xii) -49

(xiii) $+36$ (xiv) $+65$

(xv) $+110, -8$

$= 110 \times -8$

$= -880$

3. (i) $+1$ (ii) -24 (iii) -72 (iv) -108

(v) $[(25) \times (-8)] \times (-16)$

$= [(-200)] \times (-16)$

$= [3200]$

$= 3200$

(vi) $[(-100) \times (-15)] \times (3)$

$= [(-100 \times -15)] \times (3)$

$= [(1500)] \times (3)$

$= 1500 \times 3$

$= 4500$

EXERCISE - 5.5

1. (i) $+6$ (ii) 4 (iii) 13 (iv) 9

(v) -9 (vi) -2 (vii) -20 (viii) 9

(viii) $(-189) \div (-21)$ (ix) $(-155) \div (+31)$

$= \frac{-189}{-21} = 9$ $= \frac{-155}{31} = -5$

(x) $(+372) \div (+124)$

$= \frac{372}{124} = 3$

2. (i) 4 (ii) 8 (iii) -20 (iv) -5

(v) $\frac{\square}{-8} = 9$

$= \square = 9 \times -8$

$= \square = -72$

(vi) + 13 (vii) 2

(viii) $\frac{-16}{2} = 2 \times \square$

$= -16 = 2 \times 2 \times \square$

$= \frac{-16}{2 \times 2} = \square$

$= \frac{-16}{4} = \square$

$= \square = -4$

(ix) 3

3. (i) + 14

(ii) $(-195) \div (+15)$

$= \frac{-195}{15} = -13$

(iii) 4

(iv) $(+196) \div (-28)$

$= \frac{196}{-28} = -7$

(v) − 9

(vi) $(+2000) \div (-40)$

$= \frac{2000}{-40} = \frac{-2000}{40}$

$= -50$

REVIEW EXERCISE

4. (i) 5 (ii) 6 (iii) 56

(iv) $[(-24) + (-13) + (+27) = (-24) + [(-13) + (+27]]$

$= [-24 - 13 + 27] = (-24) + [14]$

$= [-37 + 27] = (-10)$

$= [-10] = (-10)$

$= -10 = -10$

L.H.S = R.H.S. (Associative property)

5. (i) 61 (ii) − 20

(iii) $(-52) - \square = -24$

$= -52 - \square = -24$

$= -52 + 24 = \square$

$= -28 = \square$

(iv) $(+123) - (+87) = \square$

$= 123 - 87 = \square$

$= 36 = \square$

6. (i) − 13 (ii) $(+345) \div (+23)$

$= \frac{345}{23} = 15$

(iii) − 11 (iv) $(-4140) \div (345)$

$= \frac{-4140}{345} = -12$

CHAPTER - 6

EXERCISE - 6.1

Do yourself

EXERCISE - 6.2

1. (i) denominator (ii) numerator

2. $\frac{2}{5}$ **3.** $\frac{1}{4}, \frac{1}{7}, \frac{1}{15}, \frac{1}{27}$

4. (i) two (ii) four (iii) $\frac{1}{3}$ (iv) $\frac{1}{4}$

(v) $\frac{1}{5}$ (vi) $\frac{1}{8}$

EXERCISE - 6.3

1. (i) 2 (ii) 3, $\frac{9}{12}$ (iii) 4, $\frac{2}{3}$

(iv) $\frac{10}{20} = \frac{10 \div \square}{20 \div \square} = \frac{\square}{2}$

$= \frac{10}{20} = \frac{10 \div 5}{20 \div 5} = \frac{2}{4} = \frac{1}{2}$

(v) 18, 16 (vi) 2, $\frac{2}{4}$ (vii) 2, 2, 4

(viii) 8, 12

2. (i) $\frac{1}{4} \times \frac{2}{2} = \frac{2}{8}$ (ii) $\frac{3}{5} \times \frac{2}{2} = \frac{6}{10}$

$= \frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$ $= \frac{3}{5} \times \frac{3}{3} = \frac{9}{15}$

(iii) $\frac{14}{16}, \frac{21}{24}$ (iv) $\frac{12}{24}, \frac{18}{36}$

(v) $\frac{8}{10} \times \frac{2}{2} = \frac{16}{20}$

$= \frac{8}{10} \times \frac{3}{3} = \frac{24}{30}$

or we can divide by same number also as→

(i.e. their H.C.F.)

$\frac{8}{10} \div \frac{2}{2} = \frac{4}{5}$

(vi) $\frac{4}{14}, \frac{6}{21}$

3. (i) We find the simplest form of given fraction as

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

$\frac{6}{12} \div \frac{6}{6} = \frac{1}{2}$

So they are equivalent fraction

(b) No

4. $\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$; $\frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$

so they are = $\frac{3}{6}, \frac{4}{6}$

EXERCISE - 6.4

1. (i) $\frac{1}{2}$ (ii) $\frac{1}{11}$ (iii) $\frac{1}{3}$ (iv) $\frac{1}{3}$

(v) $\frac{1}{12}, \frac{1}{5}, \frac{1}{6}$

Taking LCM = 60

$= \frac{5, 12, 10}{60}$

$= \frac{5}{60}, \frac{12}{60}, \frac{10}{60}$

$= \frac{1}{5}$ is largest fraction

(vi) equal (vii) $\frac{5}{6}$ (viii) $\frac{3}{4}$ (ix) $\frac{4}{5}$

(x) $\frac{6}{11}, \frac{6}{17}, \frac{6}{13}$

Taking LCM of 11, 17, 13 = 2431

$= \frac{221 \times 6, 143 \times 6, 187 \times 6}{2431}$

$= \frac{221 \times 6}{2431}, \frac{143 \times 6}{2431}, \frac{187 \times 6}{2431}$

$= \frac{6}{11}$ is largest fraction.

We know that out of two fractions having the same numerator, the larger fraction is the fraction with smaller denominator.

And out of two fractions having the same denominator, the larger fraction is the fraction with the larger numerator.

2. (i) < (ii) > (iii) < (iv) > (v) <

(vi) $\frac{1}{3} < \frac{5}{6}$

Hint → same as above mention.

Solution : $\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$

(to make the denominator same)

Now we can compare as $\frac{2}{6} < \frac{5}{6}$

(vii) = (viii) < (ix) = (x) <

(xi) $\frac{2}{10} > \frac{1}{9}$

$= \frac{2}{10} \times \frac{9}{9} = \frac{18}{90}$

$= \frac{1}{9} \times \frac{10}{10} = \frac{10}{90}$

so we can say that $\frac{18}{90} > \frac{10}{90}$

(xii) <

3. Hint → Out of two fractions having numerator the larger fraction is the fraction with smaller denominator.

(i) $\frac{1}{7}, \frac{1}{4}, \frac{1}{9}$

Taking L.C.M. = 252

$= \frac{36, 63, 28}{252}$

$= \frac{1}{9} < \frac{1}{7} < \frac{1}{4}$

(ii) $\frac{4}{11}, \frac{4}{7}, \frac{4}{5}$ (iii) $\frac{1}{8}, \frac{3}{8}, \frac{5}{8}$

(iv) $\frac{5}{12}, \frac{7}{12}, \frac{11}{12}$ (v) $\frac{7}{12}, \frac{5}{6}, \frac{11}{12}$

(vi) $\frac{7}{10}, \frac{7}{11}, \frac{13}{22}$

Taking LCM = 110

$= \frac{77, 70, 65}{110}$

$= \frac{13}{22} < \frac{7}{11} < \frac{7}{10}$

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

$= \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

EXERCISE - 6.5

1. (i) $\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$

(ii) $\frac{3}{7}$ (iii) $\frac{2}{9}$ (iv) $\frac{3}{6}$ (v) $\frac{3}{4}$

(vi) $\frac{6}{11}$ (vii) $\frac{4}{5}$ (viii) 1 (ix) 1

(x) $\frac{6}{7}$ (xi) $\frac{6}{10}$ (xii) $\frac{7}{8}$ (xiii) $\frac{5}{6}$

(xiv) $\frac{2}{3}$ (xv) $\frac{6}{7}$

(xvi) $\frac{2}{8} + \frac{3}{8} + \frac{1}{8} = \frac{2+3+1}{8} = \frac{6}{8}$

(xvii) $\frac{9}{10}$ (xviii) $\frac{2}{3}$ (xix) 1

(xx) $\frac{7}{15} + \frac{6}{15} + \frac{2}{15} = \frac{7+6+2}{15} = \frac{15}{15} = 1$

2. (i) $\frac{7}{9} - \frac{2}{9} = \frac{7-2}{9} = \frac{5}{9}$

(ii) 5, 3 (iii) 7, 3, 4 (iv) $\frac{7-4}{8} = \frac{3}{8}$

(v) $\frac{8}{15} - \frac{7}{15} = \frac{8-7}{15} = \frac{1}{15}$

3. (i) $\frac{2}{3} - \frac{1}{3} = \frac{2-1}{3} = \frac{1}{3}$

(ii) $\frac{2}{5}$ (iii) $\frac{8}{10}$

(iv) $\frac{3}{4} - \frac{1}{4} = \frac{3-1}{4} = \frac{2}{4} = \frac{1}{2}$

(v) $\frac{5}{8}$ (vi) $\frac{1}{2}$

(vii) $\frac{6}{11} - \frac{5}{11} = \frac{6-5}{11} = \frac{1}{11}$

(viii) $\frac{1}{9}$ (ix) $\frac{5}{7}$ (x) $\frac{1}{6}$ (xi) $\frac{7}{15}$

(xii) $\frac{5}{13}$ (xiii) $\frac{1}{4}$ (xiv) $\frac{1}{9}$

(xv) $\frac{17}{20} - \frac{7}{20} = \frac{17-7}{20} = \frac{10}{20} = \frac{1}{2}$

4. (i) $\frac{7}{15} + \frac{\square}{15} = \frac{12}{15}$

$= \frac{\square}{15} = \frac{12}{15} - \frac{7}{15}$

$= \frac{\square}{15} = \frac{12-7}{15}$

$= \frac{\square}{15} = \frac{5}{15} \Rightarrow \frac{5}{15} = \frac{5}{15}$

(ii) 2 (iii) 1

(iv) $\frac{2}{7} + \frac{\square}{7} = \frac{6}{7}$

$= \frac{\square}{7} = \frac{6}{7} - \frac{2}{7}$

$= \frac{\square}{7} = \frac{4}{7}$

EXERCISE - 6.6

1. (i) $\frac{1}{3} \times \frac{2}{2} = \frac{2}{6} + \frac{1}{6}$

$= \frac{2+1}{6} = \frac{3}{6} = \frac{1}{2}$

(ii) $\frac{3}{4}$ (iii) $\frac{9}{10}$

(iv) $\frac{1}{4} \times \frac{2}{2} = \frac{2}{8} + \frac{3}{8}$

$= \frac{2+3}{8} = \frac{5}{8}$

(v) $\frac{8}{9}$

(vi) $\frac{2}{7} \times \frac{3}{3} = \frac{14}{21} + \frac{4}{21}$

$= \frac{14+4}{21} = \frac{18}{21} = \frac{6}{7}$

(vii) $\frac{11}{12}$ (viii) $\frac{19}{12}$ (ix) $\frac{12}{15}$

(x) $\frac{3}{4} \times \frac{5}{5} = \frac{15}{20} + \frac{3}{20}$

$= \frac{15+3}{20} = \frac{18}{20} = \frac{9}{10}$

(xi) $\frac{15}{18} = \frac{5}{6}$ (xii) $\frac{17}{24}$ (xiii) $\frac{9}{10}$ (xiv) $\frac{13}{16}$

(xv) $\frac{5}{21} + \frac{2}{3}\left[\frac{2}{3} \times \frac{7}{7} = \frac{14}{21}\right]$

$= \frac{5}{21} + \frac{14}{21}$

2. (i) $\frac{1}{3} \times \frac{2}{2} = \frac{2}{6} - \frac{1}{6}$

$= \frac{2-1}{6} = \frac{1}{6}$

(ii) $\frac{1}{4}$ (iii) $\frac{3}{10}$ (iv) $\frac{13}{30}$

(v) $\frac{8}{15} - \frac{2}{5}\left(\frac{2}{5} \times \frac{3}{3} = \frac{6}{15}\right)$

$= \frac{8}{15} - \frac{6}{15}$

$= \frac{8-6}{15} = \frac{2}{15}$

(vi) $\frac{4}{12}$ (vii) $\frac{1}{9}$ (viii) $\frac{9}{20}$

(ix) $\frac{13}{15} - \frac{2}{3}\left(\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}\right)$

$= \frac{13}{15} - \frac{10}{15}$

$= \frac{13-10}{15} = \frac{3}{15} = \frac{1}{5}$

REVIEW EXERCISE

1. (i) $\frac{3}{10}$ (ii) $\frac{3}{8}$

2. Do yourself

3. (i) $\frac{10}{12}, \frac{15}{18}$ (ii) $\frac{6}{8}, \frac{9}{12}$ (iii) $\frac{2}{14}, \frac{3}{21}$

(iv) $\frac{20}{30}, \frac{30}{45}$ (v) $\frac{16}{24}, \frac{24}{36}$

4. $\frac{4}{15}, \frac{8}{15}, \frac{3}{5}, \frac{2}{3}$

5. $\frac{2}{3}, \frac{1}{2}, \frac{7}{18}, \frac{2}{9}$

6. (i) $\frac{1}{2} \times \frac{5}{5} = \frac{5}{10} + \frac{2}{10}$

$= \frac{5+2}{10} = \frac{7}{10}$

(ii) $\frac{5}{8}$ (iii) $\frac{6}{13}$ (iv) $\frac{5}{15}$

(v) $\frac{1}{2} + \frac{1}{6} + \frac{1}{6}$

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

$= \frac{3+1+1}{6} = \frac{5}{6}$

(vi) $\frac{9}{10}$ (vii) $\frac{3}{4}$

(viii) $\frac{1}{2} \times \frac{12}{12} = \frac{12}{24}; \frac{2}{12} \times \frac{2}{2} = \frac{4}{24}$

Now $\frac{12}{24} + \frac{4}{24} + \frac{1}{24}$

$= \frac{12+4+1}{24} = \frac{17}{24}$

(ix) $\frac{15}{16}$

(x) $\frac{1}{10} \times \frac{2}{2} = \frac{2}{20}; \frac{2}{5} \times \frac{4}{4} = \frac{8}{20};$

Now $\frac{2}{20} + \frac{8}{20} + \frac{1}{20} \Rightarrow \frac{2+8+1}{20} = \frac{11}{20}$

7. (i) Total amount $= \frac{1}{3} \times \frac{4}{4} = \frac{4}{12};$

$= \frac{1}{4} \times \frac{3}{3} = \frac{3}{12};$

So, $\frac{4}{12} + \frac{3}{12} + \frac{1}{12}$

$= \frac{4+3+1}{12} = \frac{8}{12} = \frac{2}{3}$

greatest $= \frac{4}{12}$

least $= \frac{1}{12}$

difference $= \frac{4}{12} - \frac{1}{12} = \frac{4-1}{12} = \frac{3}{12}$

$= \frac{1}{4}$

CHAPTER - 7
EXERCISE - 7.1

1.

Whole number part	Decimal part	Value of Decimal part	Write in words
8	5	$\frac{5}{10}$	Eight and five tenths

14	7	$\frac{7}{10}$	Fourteen and seven tenths
23	0	...	twenty three
5	4	$\frac{4}{10}$	Five and four tenths

2. (i) 3.4 (ii) 4.35

(iii) $7 + \frac{2}{10} + \frac{6}{100} + \frac{8}{1000}$

$= 7 + 0.2 + 0.06 + 0.008$

$= 7.268$

(iv) 0.389 (v) .037

(vi) $9 + \frac{6}{1000} + \frac{4}{10{,}000}$

$= 9 + 0.006 + 0.0004$

$= 9.0064$

3. (i) $2 + \frac{7}{10}$ (ii) $3 + \frac{4}{10} + \frac{6}{100}$

(iii) $17 + \frac{3}{10} + \frac{2}{100} + \frac{8}{1000}$

(iv) 486.638

$= 486 + \frac{6}{10} + \frac{3}{100} + \frac{8}{1000}$

So, 486.638 has 4 hundreds, 8 tens, 6 units, 6 tenths, 3 hundredths and 8 thousands.

(v) $28 + \frac{3}{100}$ (vi) $9 + \frac{8}{1000}$

(vii) $7 + \frac{6}{10000}$ (viii) $84 + \frac{2}{10} + \frac{5}{1000}$

4. (i) 4 (ii) $\frac{8}{10}$ (iii) $\frac{5}{1000}$

(iv) $\frac{3}{10000}$ (v) $\frac{3}{100}$ (vi) $\frac{4}{100}$

EXERCISE - 7.2

1. (a) 24.3 (b) 3.005 (c) 6.378

EXERCISE - 7.3

1. (i) 0.2 0.4

2 < 4

so 0.2 < 0.4

(ii) 70.7

(iii) 6.60 6.58

so 6.60 > 6.58

(iv) 7.4 (v) 0.80

2. (i) 0.04 < 0.14 < 1.04 < 1.14

(ii) 0.09 < 0.9 < 0.99 < 1.1 < 7

3. (i) 8.8 > 8.6 > 8.59 > 8.09

(ii) 8.68 > 8.66 > 8.06 > 6.8

4. (i) $\frac{15}{2} = 7.5$

$2\overline{)15}\,(7.5$

-14

10

-10

0

(ii) 0.76

(iii) $\frac{7}{50} = 0.14$

$50\overline{)70}\,(0.14$

-50

200

-200

0

(iv) $\frac{1479}{125} = 11.832$

$125\overline{)1479}\,(11.832$

-125

229

-125

1040

-1000

400

-375

250

-250

0

(v) 22.75 (vi) 15.125

(vii) $4\frac{3}{5} = \frac{23}{5} = 4.6$

$5\overline{)23}\,(4.6$

-20

30

-30

0

(viii) $4\frac{7}{16} = \frac{71}{16} = 4.4375$

$16\overline{)71}\,(4.4375$

-64

70

-64

60

-48

120

-112

80

-80

0

5. (i) $\frac{16}{100} = 0.16$ (ii) $\frac{278}{1000} = 0.278$

(iii) $\frac{6}{100} = \frac{06}{100} = .06$ (iv) $\frac{369}{100} = 3.69$

(v) 0.016 (vi) 34.5

EXERCISE - 7.4

1. Aarav's father gave him = ₹ 100.00
He bought a math book = – ₹ 61.35
38.65
money left with him = ₹ 38.65

2. (i) 25.11 (ii) 14.01 (iii) 9.85
3.80 1.1 0.61
28.91 1.98 10.46
17.09

(iv) 21.24 and

(v) 6.32 are follow same procedure.

3. Abhiskek travelled by bus = 5.028
Abhiskek travelled by car = 2.265
Abhiskek travelled on foot = 1.030
Total distance = 8.323

4. 213.007 **5.** 1.61 **6.** 170.12

7. Two ropes
(i) 10.67
(ii) 16.32
Joined 26.99
maximum length of the single rope
= 26 m 99 cm

8. Add these decimals simply. (60.25 ans.)

9. Add these decimals. (₹ 12 ans.)

REVISION EXERCISE

1. (i) $13.8 = \frac{138}{10} = \frac{69}{5}$

(ii) $13.08 = \frac{1308}{100} = \frac{654}{50} = \frac{327}{25}$

(iii) $13.008 = \frac{13008}{1000} = \frac{1626}{125}$

2. (i) 1.5 (ii) 0.2 (iii) 6.25

3. Ramesh bought vegetables = 15 kg
Potatoes are = 10.250 kg
Tomatoes are = + 3.500 kg
13.750 kg
Onion are = 15.000
13.750
1.250 kg

4. (i) 123 cm = $\frac{123}{100}$ m
= 1.23 m

(ii) 3.42 m

(iii) 5043 cm = $\frac{5043}{100}$ m
= 50.43 m

(iv) 2.34 m

5. (i) 452 mm = $\frac{453}{10}$ cm
= 45.2 cm

(ii) 32.4 cm (iii) 15.2 cm (iv) 32.9 cm

6. Add these decimals. [11.131 ans.]

7. A rope is of length = 7.47 m
cut from it = 2.43 m
left = 5.04 m
No this rope is not sufficient to tie a cloth line between two hooks which are 6 m apart because 5.04 is not completely divided by 6.

8. Do yourself

CHAPTER - 8
EXERCISE - 8.1

1. (i) 1 shape contain = 2 matchsticks
2 shape contain = 4 matchsticks
as
1 shape 2 shape 3 shape
2 4 6
1 + 1 2 + 2 3 + 3
so nth shape contain n + n = 2n matchsticks
So, 9th shape contain = 9 + 9
= 18 matchsticks

(ii) $2 \times 1 = 2$,
$2 \times 2 = 4$,
$2 \times 3 = 6$,
$2 \times 4 = 8 \ldots = 2n$

2. (i) $3x + 2$
if $x = 2$
then $3x^2 + 2 = 6 + 2 = 8$
if $x = 3$

then $3 \times 3 + 2 = 9 + 2 = 11$

if $x = 4$

then $4 \times 4 + 2 = 16 + 2 = 18$

(ii) 14, 29, 34, 44, 39, 10

4. cost of 1 pen = ₹ 11

n pen = cost of 1 pen × No. of pen

$= 11 \times n$

$= 11\,n$

5. Cost of 1 hat = ₹ 75

cost p hat = cost of 1 hat × No. of hats

= ₹ 75 × p = 75 p

6. Cost of m books = ₹ 23 m

cost of 1 book = $\frac{23\ m}{m}$ = ₹ 23

7. Let Anurag age be x

then relation and gavatri age be y

then, $y = x + 2$

8. Let the no. of books Sunita have = xy

and Hema = $2y + 4$

9. Each students gets = 6 candies

No. of students = z

Total cadies will be = 6 z

EXERCISE - 8.2

1. (i) m is literal coefficients of 45 n

n is literal coefficients of 45 m

(ii) u is literal coefficient of – 7 u

v is literal coefficient of – 7 v

(iii) N L (iv) N L

3,5 a,b – 11 z

2. (i) abc (ii) 7bc (iii) 7ac (iv) bc

3. Monomial → (i), (iv), (vii)

Binomial → (ii), (iii), (vi), (ix)

Trinomial → (v), (viii), (x), (xi), (xii)

4. (i) $5x - x + x + \frac{5x}{7}$

$- 7y + \frac{y}{2} + y$

$5x + \frac{5x}{7}, \frac{y}{2} - 6y$

(ii) $\left(\frac{2}{3}ab, -3ab, \text{ and } ab\right)$

$\left(5bc, \frac{-2}{5}bc, \frac{bc}{4}\right)$

(iii) $(-xy^2, 5xy^2$ and $3xy^2)$

$(-y^2x^2$ and $-10x^2y^2)$

(iv) $8ax + 5xa + \frac{3}{5}ax, \frac{by}{10} - 3by$

$13ax + \frac{3}{5}ax, \frac{by}{10}, -3by$

(v) $(5a^2b, 3a^2b$ and $10a^2b)$

$(ab^2, 2ab^2)$

REVIEW EXERCISE

1. (a) Perimeter = $3 \times l$

$= 3\,(3l)$

$= 9\,l$

2. (b) $p \div 15$

3. (c) $3\,(23 - 5) + 5 \times 2$

4. (d) 2y

5. (a) $3x + 2 = 11$

CHAPTER - 9
EXERCISE - 9.1

1. (i) $x + 8 = 14$ (ii) $x - 7 = 9$ (iii) $2y = 16$

(iv) $\frac{y}{3} = 2$ (v) $z + 2 = 4$ (vi) $x - 4 = 3$

(vii) $2x + 3 = 17$ (viii) $x + y = 20$

(xi) $2x + 7 = y$ (x) $6p = b$

2. (i) $2 + 5x = x$

Subtracting $5x$ from both sides

$2 + 5x - 5x = x - 5x$

$2 = x - 5x$

$2 = -4x$

$x = \frac{-2}{4} = -\frac{1}{2}$ (Dividing by on both sides)

(ii) $3a - 3 = 0$

$3a = 3$ (By adding 3 on both sides)

$a = \frac{3}{3} = 1$ (on simplifying)

(iii) $x = 8$ (iv) $x = 6$ (v) $x = 3$

(vi) $x = 18$

(vii) $x + 2 = 2x - 1$

Subtracting x from both sides

$x + 2 - x = 2x - 1 - x$

$2 = x - 1$

$x - 1 = 2$ (adding 1 on both sides)

$x - 1 + 1 = 2 + 1$

$x = 3$

(viii) $y = -12$

(ix) $x + 4 + x - 2 = 0$

$x + x + 4 - 2 = 0$ (combine like terms)

$2x + 2 = 0$

(By subtracting 2 from both sides)

$2x + 2 - 2 = -2$

$2x = -2$(By dividing by 2 on both sides)

$\frac{2x}{2} = \frac{-2}{2}$

$x = -1$

(x) $m = -2$ (xi) $x = 4$

(xii) $\frac{x}{2} + \frac{3x}{2} + \frac{x}{2} + \frac{5x}{2} = 25$

(on adding like terms)

$\frac{x + 3x + x + 5x}{2} = 25$

$\frac{10x}{2} = 25$

(By multiplying by 2 to both sides)

$\frac{10x}{2} \times 2 = 25 \times 2$

$10x = 50$

(on dividing by 10 both sides)

$\frac{10x}{10} = 50$

$\frac{10x}{10} = \frac{50}{10}$

$x = 5$

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

(By multiplying by 2 to both sides)

$\frac{x}{2} \times 2 = \frac{7}{2} \times 2$

$x = \frac{14}{2} = 7$

(xiv) $m = 4$

3. (i) $x - 3 = 7$

Statement with "=" Sign

$\therefore$ It's equation equations are :

(i), (iv), (v), (viii), (x), (xi), (xii)

4.	L.H.S.	R.H.S.
	(i) $x - 5$	6
	(ii) $4y$	12
	(iii) $2z + 3$	7
	(iv) $3p$	24
	(v) 4	$x - 2$
	(vi) $2a - 3$	-5

5. (i) $x + 3 = 5$

on putting $x = 1$

$1 + 3 = 5$ (wrong)

on putting $x = 2$

$2 + 3 = 5$ correct

So root of the equation = $x = 2$

(ii) $y = 9$ (iii) $a = 8$

(iv) $5y = 15$

(on putting $y = 1, 2, 5, 4$)

$y = 1$

then, $5 \times 1 = 15$

$5 = 15$(wrong)

$y = 2$

then $5 \times 2 = 15$

$5 = 15$ (wrong)

$y = 3$

then $5 \times 3 = 15$

$15 = 15$ (correct)

so root of the equation = $y = 3$

(v) $n = 5$

(vi) $3z = 27$

on putting $z = 1$

$3 (1) = 27$ (wrong)

on putting $z = z$

$3 (2) = 27$ (wrong)

$z = 3$,

then, $3 (3) = 27$ (wrong)

$z = 4$,

then, $3 (4) = 27$ (wrong)

$z = 5$

$3 (5) = 27$

$15 \neq 27$
then, $z = 6$
$3\,(6) = 27$
$18 \neq 27$
then, $z = 7$
$3\,(7) = 27$
$21 \neq 27$
then, $z = 8$
$3\,(8) = 27$
$24 \neq 27$
then, $z = 9$
$3\,(9) = 27$
$27 = 27$
hence $z = 9$

EXERCISE - 9.2

1. Assume original price = x
then = $x - 7 = 18$ (By adding 7 on both sides)
$= x - 7 + 7 = 18 + 7$
$= x = 25$

2. Let the one number be x
$\therefore$ other number is $2x$
Sum of two number is 12
$x + 2x = 12$
$3x = 12$
$x = 4$
So, one number is = 4
other number = $2 \times 4 = 8$

3. Suppose other number is = x
then $9 \times x = 72$
$9x = 72$ (By dividing by 9 on both sides)
$= \frac{9x}{9} = \frac{72}{9} \Rightarrow x = 8$

4. Suppose one number is = x
so according to the question second number $\frac{x}{4}$
Difference = $x - \frac{x}{4} = 6$
$= x \times \frac{4}{4} = \frac{4x}{4}, \frac{x}{4}$
$= \frac{4x}{4} - \frac{x}{4} = 6$
$= \frac{3x}{4} = 6 \qquad \left(\frac{6 \times 4}{3}\right)$
$= x = 8$
one number is = 8
other no. = $\frac{x}{4} = \frac{8}{4} = 2$

5. Book + Pen = 45
Book = $8 \times$ Pen
$8 \times$ Pen + Pen = 45 [$\because$ 1 Book = $8 \times$ Pen]
Pen $(8 + 1) = 45$
9 Pen = 45
Pen = $\frac{45}{9} = ₹\ 5$
Book = $45 - 5 = ₹\ 40$

6. Let first page be x
Second page be $x + 1$
Sum of two pages = 93
$\therefore \quad x + x + 1 = 93$
$2x + 1 = 93$
$2x = 93 - 1 = 92$
$2x = 92$
$x = \frac{92}{2} = 46$
So, first page = 46
Second page = $x + 1$
$= 46 + 1 = 47$

7. Let score of Virat is x
Acc to Q the score of Ajinkya = $2x$
Their total score, $x + 2x = 69$
$= 3x = 69$
$= x = 23$
Virat scored = 23
Ajinkya score = $2\,(x) = 2\,(23) = 46$
Ajinkya need only 4 runs to complete his half century.

REVIEW EXERCISE

1. (i) $x = \frac{2}{5}$ (ii) $x = 9$

(iii) $\frac{5x - 4}{8} - \frac{x - 3}{5} = \frac{x + 6}{4}$
$= \frac{5\,(5x - 4)}{8 \times 5} - \frac{8\,(x - 3)}{5 \times 8} = \frac{10\,(x + 6)}{4 \times 10}$

$$= \frac{25x - 20}{40} - \frac{8x - 24}{40} - \frac{10x + 60}{40}$$

$$= \frac{25x - 20 - 8x + 24 - 10x - 60}{40} = 0$$

$$= \frac{7x - 56}{40} = 0$$

$$= 7x = 56$$

$$= x = 8$$

(iv) $\frac{2}{3}(x - 5) - \frac{1}{4}\left(x - \frac{7}{3}\right) = \frac{-3}{2}$

$$\frac{2x}{3} - \frac{10}{3} - \frac{x}{4} + \frac{7}{12} + \frac{3}{2} = 0$$

$$\frac{8x - 40 - 3x + 7 + 18}{12} = 0$$

(∵ Taking 12 as L.C.M.)

$$= \frac{5x - 15}{12} = 0$$

$$= 5x = 15$$

$$= x = 3$$

(v) $x = 3$ (vi) $x = 3$

2. Let the number be x

no. is doubled = $2x$

$2x + 7 = 13$

$2x = 13 - 7$

$2x = 6$

$x = \frac{6}{2} = 3$

no. is 3

3. Let the breadth is x

Length = $3x + 6$

Perimeter of rectangle = 2 (length + breadth)

$= 2(x + 3x + 6) = 148$

$= 2(4x + 6) = 148$

$= 8x + 12 = 148 \Rightarrow 8x = 148 - 12$

$= 8x = 136$

$x = \frac{136}{8} = 17$

∴ breadth = 17 m

length = $(3 \times 17) + 6 = 57$ m

4. Let the four consecutive no. be x, $x + 1$, $x + 2$, $x + 3$

⇒ Sum of numbers are 266

$x + x + 1 + x + 2 + x + 3 = 266$

$4x + 6 = 266$

$4x = 266 - 6$

$4x = 260$

$x = \frac{260}{4} = 65$

∴ four consecutive no. are 65, 66, 67, 68

5. Let the no. be x

$4x - 5 = 19$

$4x = 19 + 5$

$4x = 24$

$x = \frac{24}{4} = 6$

no. is 6

6. The number be x

According to question

Three times of number = $3x$

Two times of the same number = $2x$

then,

$3x + 2x = 25$

$= 5x = 25$

$= x = 5$

7. Let the no. be x

$5x - 2x = 39$

$3x = 39$

$x = \frac{39}{3} = 13$

number is 13

8. Let three consecutive number be x, $x + 1$, $x + 2$

According to questions

Then, there sum will be

$= x + x + 1 + x + 2 = 21$

$= 3x + 3 = 21$

$= 3x = 18$

$= x = 6$

Then, number will be 6, 7, 8

CHAPTER - 10
EXERCISE - 10.1

1. (i) 3 : 4 (ii) 2 : 7 (iii) 9 : 11 (iv) 1 : 13
(v) 5 : 6 (vi) 8 : 13 (vii) 14 : 23
(viii) 10 : 99 (ix) $a : b$ (x) $x : y$

2. (i) $\frac{2}{3}$ (ii) $\frac{7}{4}$ (iii) $\frac{19}{20}$ (iv) $\frac{99}{100}$

(v) $\frac{1}{10}$ (vi) $\frac{4.1}{5.2}$ (vii) $\frac{a}{b}$ (viii) $\frac{x}{y}$

3. (i) 3 : 9

$= \frac{3}{9} = \frac{1}{3}$

$= 1 : 3$

(ii) 5 : 8 (iii) 3 : 2 (iv) 6 : 1 (v) 7 : 1

(vi) 15 : 2 (vii) 1 : 3 (viii) 1 : 20

(ix) $\frac{1}{4} : \frac{1}{6} : \frac{1}{8}$

multiply by LCM 24 of 4, 6 and 8

$= \frac{1}{4} \times 24 : \frac{1}{6} \times 24 : \frac{1}{8} \times 24$

$= 6 : 4 : 3$

(x) 3 : 4 : 5 (xi) 1 : 2 : 3 (xii) 100 : 10 : 1

4. (i) 100 and Rs. 250

$= 100 : 250$

$= \frac{100}{250} = \frac{2}{5} = 2 : 5$

(ii) 2 kg and 800 g

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

$= 2000 \text{ g and } 800 \text{ g}$

$= \frac{2000}{800} = \frac{5}{2}$

$= 5 : 2$

(iii) 1 m and 500 cm

$\because$ 1 m = 100 cm

$= 100 \text{ cm and } 500 \text{ cm}$

$= 100 : 500$

$= \frac{100}{500} = \frac{1}{5} = 1 : 5$

(iv) 1 year and 240 days

$\because$ 1 year= 365 days

365 days and 240 days

$= 365 : 240$

$= \frac{365}{240} = \frac{73}{48} = 73 : 48$

(v) 1 day, 1 week and 15 days

$\because$ 1 week = 7 days

1 day, 7 days, and 15 days

$= 1 : 7 : 15$

5. (i) 12 is to 120

$\frac{12}{120} = \frac{1}{10} \Rightarrow 1 : 10$

(ii) 25 is to 50

$\frac{25}{50} = \frac{1}{2} \Rightarrow 1 : 2$

(iii) 80 is to 100

$= 80 : 100$

$= \frac{80}{10} \div 100$

$= \frac{80}{100}$

$= \frac{4}{5} \Rightarrow 4 : 5$

(iv) 72 is to 48

$\frac{72}{48} = \frac{3}{2} \Rightarrow 3 : 2$

(v) 4000 is to 40

$= 4000 \div 40$

$= \frac{4000}{40}$

$= \frac{400}{4}$

$= 100 \Rightarrow 100 : 1$

(vi) $\frac{1}{99}$ is to $\frac{2}{33}$

$= \frac{1}{99} \div \frac{2}{33}$

$= \frac{1}{99} \times \frac{33}{2}$

$= \frac{33}{99 \times 2} = \frac{1}{3 \times 2}$

$= \frac{1}{6} \Rightarrow 1 : 6$

EXERCISE- 10.2

1. (i) $\frac{2}{5} = \frac{P}{20}$ These are equal so

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

$= 5P = 40$

$P = \frac{40}{5} = 8$

(ii) $\frac{P}{5} = \frac{3}{10}$

$10\,P = 15$

$P = \frac{15}{10}$

$P = 1.5$

(iii) $\frac{0.1}{0.4} = \frac{6}{P}$

$= 0.1P = 0.4 \times 6$

$= 0.1P = 2.4$

$= P = \frac{2.4}{0.1} = 24$

2. (i) $\frac{2}{7} = \frac{x}{49}$

$= 2 \times 49 = 7 \times x$

$= 98 = 7x$

$= 7x = 98$

$= x = \frac{98}{7} = 14$

(ii) $8 : 12 : : 6 : x$

$\frac{8}{12} = \frac{6}{x}$

$8x = 6 \times 12$

$x = \frac{72}{8} = 9$

$x = 9$

(iii) $1.2 : 3.6 : : x : 3$

$\frac{1.2}{3.6} = \frac{x}{3}$

multiply both side by 10

$\frac{1.2 \times 10}{3.6 \times 10} = \frac{x \times 10}{3 \times 10}$

$\frac{12}{36} = \frac{10x}{30}$

$\frac{360}{360} = x$

$x = 1$

(iv) $x : 2 : : 150 : 100$

$\frac{x}{2} = \frac{150}{100}$

$x = \frac{150 \times 2}{100}$

$x = 3$

3. $\frac{5}{9} \times \frac{8}{8} = \frac{40}{72}$

Second element will be = 72

4. $1 : 3 : : 4 : x$

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

$= x = 4 \times 3$

$= x = 12$

5. $4 : x : : x : 9$

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

$= x^2 = 4 \times 9$

$= x^2 = 36$

$= x = 6$

6.

Shirts	Machines
150	6
225	x

$= \frac{x}{6} = \frac{225}{150}$

$= x \times 150 = 6 \times 225$

$= x = \frac{6 \times 225}{150}$

$= x = 9$

7. 7 buffaloes gives 56 l milk

$7 : 56$

Let the 12 buffaloes give x liters

$12 : x$

$7 : 56 : : 12 : x$

$\frac{7}{56} = \frac{12}{x} \quad \Rightarrow \quad x = \frac{56 \times 12}{7} = 96$

$\Rightarrow$ 12 buffaloes gives 96 l milk

8.

Workers	Days
40	35
50	x

(Because more workers will complete the work in less days)

$= \frac{x}{35} = \frac{40}{50}$

$= x \times 50 = 35 \times 40$

$= x = \frac{35 \times 40}{50}$

$= x = 28$

9. 1 week + 3 days = 7 + 3 = 10 days

Raheem pays 750 for 10 days

$750 : 10$

Let x pay for 30 days

$x : 30$

$\Rightarrow \frac{750}{10} = \frac{x}{30} \quad \Rightarrow x = \frac{750 \times 30}{10} \Rightarrow x = 2250$

Raheem pays ₹ 2250 for 30 days

10. 36 min

11. Person Days

72 7

$72 + x$ 6

(Because more person can finish the food in less days)

$= \frac{72 + x}{72} = \frac{7}{6}$

$= 6(72 + x) = 7 \times 72$

$= 432 + 6x = 504$

$= 6x = 504 - 432$

$= 6x = 72.$

$= x = \frac{72}{6} = 12$ person

12. Cows days

33 ↑ 8 ↓

44 | x ↓

$\frac{33}{44} = \frac{x}{8}$

$x \times 44 = 33 \times 8$

$x = \frac{33 \times 8}{44} = 6$

food enough for 6 days

REVIEW EXERCISE

1. (i) $\frac{7}{10}$ (ii) $\frac{34}{100}$ (iii) $\frac{4}{10}$ (iv) 0.70

2. (i) 1 : 6 (ii) 1 : 5 (iii) 5 : 6

3. (i) 7 : 15 (ii) 6 : 7 (iii) 10 : 75

4. Ratio of Ali, Usman and Waleed is 2 : 5 : 3

Ali gets Rs 170 then to question

$2x = 170$

$x = 85$

Total amount of three

$2x + 5x + 3x$

$10x$

And $x = 85$

then 10 (85) = 850

Total Amount = 850

Amount of Usman = 5 (x)

= 5 (85) = 425

amount of Waleed = $3x = 3 \times 85 = 255$

5. Steps Distance

200 160

350 x

$= \frac{x}{160} = \frac{350}{200}$ (Direct proportion)

$= 200x = 350 \times 100$

$= x = \frac{350 \times 160}{200} = 280$ m

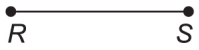
6. 17l **7.** 75 days **8.** 585 goats

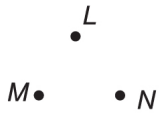
CHAPTER - 11

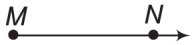
EXERCISE - 11.1

1. (i) 

(ii) 

(iii) 

(iv) 

(v) 

(vi) 

2. (i) L, M, N, O (ii) OM, LM

(iii) LM, OM, MN (iv) $\overrightarrow{OR}$, $\overrightarrow{OQ}$, $\overrightarrow{OP}$

3. (i) R, S, T, U, V (ii) ST, SV

(iii) RS, ST, SV, SU (iv) $\overleftrightarrow{PQ}$, line l, line PQ

EXERCISE - 11.2

1. (i) (ii) (iv)

2. Open curves (i), (v) Closed curves ii, iii, iv.

3. Interior P, on the boundary Q and exterior R

4. Do yourself

EXERCISE - 11.3

1. OE **2.** K

3. (i) $\angle DOE$, $\angle EOF$, $\angle DOF$

(ii) O (iii) OD, OE, OF

4. 8 :- $\angle DAB$, $\angle DCB$, $\angle ADB$, $\angle BDC$, $\angle ABD$, $\angle DBC$, $\angle ADC$, $\angle ABC$

EXERCISE - 11.4

1. $\angle BAC$, $\angle ACB$, $\angle ABC$

2. ΔADC, ΔACE, ΔAEB

3. The angles of a triangle are in the ratio = 1:2:3

We know the sum of three angles of a triangle is = 180°

So, $1x + 2x + 3x = 180°$

$= 6x = 180°$

$= x = \frac{180°}{6} = 30°$

$= 2x = 2 \times 30 = 60°$

$= 3x = 3 \times 30 = 90°$

4. Do yourself

5. (i) *CX* (ii) *BY* (iii) *AZ*

EXERCISE - 11.5

1. (i) *PO*, *MN* (ii) (i) *PM*, *MN* (ii) *ON*, *NM*
(iii) (i) $\angle P$, $\angle N$ (ii) $\angle M$, $\angle O$
(iv) PN, MO (v) $\angle M$ $\angle N$, $\angle P$ $\angle O$

2. The ratio of angles of a quadrilateral is = 1 : 2 : 3 : 6

We know the sum of all angles of a quadrilateral is = 360°

So, $1x + 2x + 3x + 6x = 360°$

$= 12x = 360°$

$= x = \frac{360°}{12} = 30°$

$= 2x = 2 \times 30° = 60°$

$= 3x = 3 \times 30° = 90°$

$= 6x = 6 \times 30° = 180°$

3. (i) S, R (ii) D, C, B, E, A (iii) T, F, Q

EXERCISE - 11.6

1. (i) *AB* (ii) *OC* (iii) *FF* (iv) *O*

2. Do yourself

3. (i) True (ii) True (iii) True (iv) False
(v) False

4. Do yourself

REVIEW EXERCISE

1. (i), (iii)

2. (ii) **3.** Polygon **4.** angle **5.** (ii)

FILL IN THE BLANKS

1. an edge **2.** circumference **3.** line **4.** open

ANSWER THE FOLLOWING QUESTIONS

1. (i) $\angle$DOE, $\angle$DOF, $\angle$EOF (ii) O
(iii) OD, OE,OF

2. AE, ED, DC, CB, AB

CHAPTER - 12

EXERCISE - 12.1

1. (i) Scalene Triangle (ii) Equilateral Triangle
(iii) Equilateral Triangle
(iv) Scalene Triangle (v) Isosceles Triangle

2. (i) Acute Triangle (ii) Obtuse Triangle
(iii) Right Triangle (iv) Acute Triangle
(v) Acute Triangle (vi) Acute Triangle

EXERCISE - 12.2

1. (i) Trapezium (ii) Rhombus
(iii) Rectangle (iv) Rhombus
(v) Square (vi) Isosceles trapezium

EXERCISE - 12.3

1. (i) 6 (ii) 6 (iii) 5 (iv) 5 (v) 3

2. (i) 6 (ii) 8 (iii) 12 (iv) 9

3. (i) 8 (ii) 5 (iii) 4 (iv) 6

4. (i) 8, 12, 6 (ii) vertices (iii) prism
(iv) Tetrahedron (v) no, no

REVIEW EXERCISE

1. (i) straight angle (ii) obtuse angle
(iii) acute angle (iv) perpendicular

2. (i) 20°, 30°, 40°, 50°, 60°
(ii) 100°, 110°, 120°, 130°, 140°

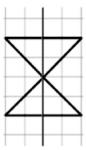
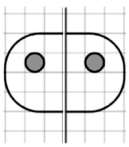
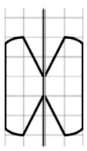
3. (i) right angle (ii) straight angle

4. Refer page No. 93
Heading "classifying Triangles"

CHAPTER - 13

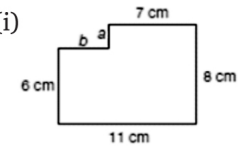
EXERCISE - 13.1

1. (i) No. (ii) Yes (iii) Yes (iv) No.
(v) No (vi) No (vii) N
(viii) Yes (ix) Yes

2. a.  b.  c. 

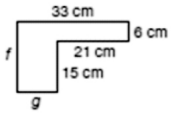
CHAPTER - 15
EXERCISE - 15.1

1. (i)



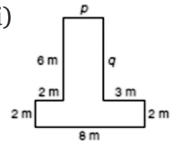
7 cm + 8 cm + 11 cm + 6 cm + 4 cm + 2 cm
= 38 cm

(ii)



33 cm + 6 cm + 21 cm + 15 cm + 12 cm + 21 cm
= 108 cm

(iii)



$\because$ [$\because$ $q + 2 = 8$]
$q = 6m$
$p + 2 + 3 = 8$
$p + 5 = 8$
$p = 3$

8 m + 2 m + 3 m + 6 m + 3 m + 6 m + 2 m + 2m
= 32 m

2. Perimeter of a square park of side 250 m
4 × 250 = 1000 m
rate of fencing = ₹ 20 per meter
cost of fencing the park = 1000 × 20 = ₹ 20,000

3. (i) Triangle = 3 cm + 4 cm + 5 cm
= 12 cm

(ii) Equilateral triangle = 6.5 cm + 6.5 cm + 6.5 cm
= 19.5 cm

(iii) Isosceles triangle = 7 cm + 7 cm + 5 cm
= 19 cm

4. Two sides of triangle = 12 cm and 14 cm
Perimeter = 36
$\because$ Perimeter = side + side + side
$\therefore$ 36 = 12 + 14 + side
= 36 = 26 + side
= 36 − 26 = side
= 10 = side

5. Wire's length = 120 cm
(i) length of each side (Equilateral Triangle)
$= \frac{120}{3} = 40$ cm

(ii) Square $= \frac{120}{4} = 30$ cm

(iii) Regular hexagon $= \frac{120}{6} = 20$ cm

(iv) Regular pentagon $= \frac{120}{5} = 24$ cm

6. Rectangle's perimeter = 2 (Length + Breadth)
= 48 = 2 (2x + x)
= 48 = 6x
= $x = \frac{48}{6} = 8$
Length = 8 × 2 = 16 cm
Breadth = 8 cm

7. Tanu goes around a square park side = 75 m
Perimeter = 75 × 4
1 round = 300 m
3 round = 300 × 3 = 900 m
Manu goes around a rectangular park
Perimeter = 2 (Length + Breadth)
= 2 (85 + 65)
= 2 × 150
= 300 m
1 round = 300 m
3 round = 300 × 3 = 900 m
Both covers the same distance

EXERCISE - 15.2

1. (i) Area of rectangle = (length × breadth)
= 50 cm × 200 cm
= 1000 cm^2

(ii) Area of rectangle = length × breadth
= 65 m × 45 m
= 2925 m^2

(iii) Area of rectangle = length × breadth
= 25 cm × 16 cm
= 400 cm^2

(iv) Area of rectangle
= 7 km × 19 km
= 133 km^2

2. (i) Area of square = $Side^2 = (26)^2$
= 676 m^2

(ii) $17\text{ km} = (17)^2 = 289\text{ km}^2$

(iii) $52\text{ cm} = (52)^2 = 2704\text{ cm}^2$

(iv) Area of square = Side^2
$= 64\text{ cm}^2$

3. Area of rectangle = length × breadth
$= 1125 = \text{length} \times 25$
$\text{length} = \frac{1125}{25}$
$= 45\text{ cm}$

4. Area = $l \times b$
$= 675 = l \times 15$
$l = \frac{675}{15} = 45\text{ m}$

5. Perimeter (square) = 12 km
$4 \times \text{Side} = 12\text{ km}$
$\text{Side} = \frac{12}{4} = 3\text{ km}$
Area (square) = side^2
$= (3)^2 = 9\text{ km}^2$

6. Area of swimming pool = 198 m^2
Length of swimming pool = 18 m
$\text{Breadth} = \frac{A}{L} = \frac{198}{18} = 11\text{ m}$

7. Area of square = side^2
$= (21)^2 = 441\text{ m}^2$
Perimeter of square = $21 \times 4 = 84\text{ m}$

8. Area of square = side^2
Perimeter of square = $4 \times \text{side}$
$= 36 = 4 \times \text{side}$
$\text{side} = \frac{36}{4} = 9$
$\text{Area} = (9)^2 = 81$
Cost of tilling the room at the rate of ₹ 182.5 per sq. m.
total cost of tilling = $81 \times 182.5 =$ ₹ 14,782.5

9. Area of rectangle = $l \times b$
$= 33\text{ m} \times 22\text{ m}$
$= 726\text{ m}^2$
Cost of leveling the playground
= 726 × 150 per sq. m.
= ₹ 108900
Perimeter of rectangle = $2(l + b)$
$= 2(33 + 22)$
$= 2 \times 55 = 110\text{ m}$
cost of fencing = $110 \times 100 =$ ₹ 11000

10. Length of square shaped field = 48 m
Area of square field of ploughing = $(5)^2$
$= 48\text{ m} \times 48\text{ m} = 2304\text{ m}^2$
Cost of ploughing the field = 2304×25
= ₹ 57600
Cost of fencing the field = 45 = 4 (48)
$= 192 \times 18 =$ ₹ 3456

11. Garden : perimeter = 2 (45 + 30)
$= 2 \times 75 = 150\text{ m}$
Garden's Area = $45 \times 30 = 1350\text{ m}^2$
Cost of repairing the garden at ₹ $50/\text{m}^2$
$= 1350 \times 50 =$ ₹ 67500
Cost of constructing a wall around it at ₹ 425 per m.
$= 150 \times 425 =$ ₹ 63750

REVIEW EXERCISE

1. (a) Heptagon's perimeter = 7 × side
$= 7 \times 5\text{ cm}$
$= 35\text{ cm}$

2. (b) Square

3. (d) $= 3\text{ cm} + 8\text{ cm} + 3\text{ cm} + 10\text{ cm} = 24\text{ cm}$

4. (d) Regular pentagon is of 5 sides
$\therefore$ Perimeter of pentagon 5 × side
$100 = 5 \times \text{side}$
$\text{side} = \frac{105}{5} = 20\text{ cm}$

5. (a) Hexagon is of 6 sides
30 cm long string piece will form of a regular hexagon of $= \frac{30}{6} = 5\text{ cm}$ long side (each)

FILL IN THE BLANKS

1. sides **2.** closed **3.** perimeter **4.** 6
5. Bulbul **6.** 6 m **7.** 15

ASSESSMENT - I

1. Eight crore seventy five lakh ninety five thousand seven hundred sixty two.

2. Predecessor of 10000
= 10000 – 1 = 9999

3. Factors of 20 = 1, 2, 4, 5, 10, 20
Factors of 28 = 1, 2, 4, 7, 14, 28
Hence common factors of 1, 2 and 4

4. Infinite

5. (i) 90° (ii) 180°

6.

It will reach to 10

7. Side of equilateral triangle = l
Perimeter of equilateral triangle = Sum of all the side
= $l + l + l = 3l$

8. Each student got = 5 pencils
Number of students = S
Hence, total number of students got pencil
= 5 S

9. (a) $297 \times 17 + 297 \times 3$
$= 297\ (17 + 3)$
$= 297\ (20)$
$= 5940$
(b) $54279 \times 92 + 8 \times 54279$
$= 54279\ (92 + 8)$
$= 54279 \times (100)$
$= 5427900$

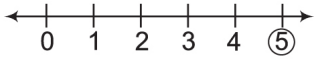
10. (a) 12 hours
$= \frac{6}{12} = 6$ hours $= \frac{1}{2}$ (fractions)
(b) 12 hours
$= \frac{3}{12} = 3$ hours $= \frac{1}{4}$ (fraction)

11. (a) 13 and 31
(b) 5 and 31

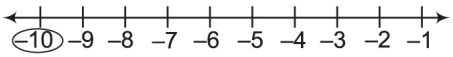
12. (a) 11 added to 2 m
2 m + 11
(b) 11 subtracted from 2 m
2 m – 11

13. Let laddus given to guest = x
given to family members = y
Total number no. of laddus given = l
Acc to = $x + y = e$
Laddus remaining = S
Total Laddus made by mother =
No. of Laddus given + Remaining Laddus
= $l + 5$

14. (a)



(b)



15. (a) 69 = 60 + 9
= 50 + 10 + 9 (∵ 50 = L)
= LXIX
(b) 98 = 90 + 8
= (100 – 10) + 8 (∵ 100 = C)
= XCVIII
(c) 55 = 50 + 5
= LV

16. (a) 738×103
$= 738 \times (100 + 3)$
(Distributive property of addition)
$= 738 \times 100 + 783 \times 3$
$= 73800 + 2349$
$= 73800 + 2349$
$= 76149$
(b) 854×102
$= 854 \times (100 + 2)$
(Distributive property of addition)
$= 854 \times 100 + 854 \times 2$
$= 85400 + 1708$
$= 87108$

17. (a) Δ ADC, Δ ABD, Δ ABC
(b) ∠ ABD, ∠ ADB, ∠ ADC, ∠ ACD, ∠ BAD, ∠ DAC, ∠ BAC
(c) AB, AD, BC, BD, DC, CA

18. (a) (– 7) – 8 – (– 25)
= – 7 – 8 + 25
= – 15 + 25
= 10
(b) (– 13) + 32 – 8 – 1
= – 13 + 32 – 8 – 1
= – 13 + 32 – 9
= 32 – 22
= 10

(c) $(-7) + \overline{(-8) + (-90)}$

$= (-7) + \overline{-8-90}$

$= (-7) + (-98)$

$= -105$

19. (a) 297144

297144 $\rightarrow$ is an even number which is divisible by 2.

297144 = 2 + 9 + 7 + 1 + 4 + 4 = 27, which is divisible by 3.

Since the number 297144 is divisible by both 2 and 3 so it will be also divisible by 6

As 2 and 3 are factors of 6

(b) 1258

1258 is an even number which is divisible by 2

1258 = 1 + 2 + 5 + 8 = 16, which is not divisible by 3.

As 2 and 3 are factors of 6 but here 1258 is not divisible by 3. Hence the number 1258 is not divisible by 6.

20. (a) $\{(-7) + (-9)\} + 4 + 16$

$= \{-16\} + 20$

$= -16 + 20$

$= 4$

(b) $2 \times [37 + \{(-2) + (-65)\} + (-8)]$

$= 2 \times [37 + \{-67\} + (-8)]$

$= 2 \times [37 - 67 + (-8)]$

$= 2 \times [37 - 67 - 8]$

$= 2 \times [-30 - 8]$

$= 2 \times [-38]$

$= -76$

21. (a) $7 + p$ (b) $p - 7$ (c) $p \times 7$ (d) $p/7$

22. (a) Scalene Triangle (b) Scalene Triangle

(c) Equilateral Triangle

23. It sheet of paper contains = 8 pages

Hence 75,000 sheet of paper contains

$= 75000 \times 8$

= 600000 pages

= 200 pages can made = 1 notebook

= 600000 pages can made = $\frac{1}{200} \times 600000$

$= \frac{600000}{200} = 3000$ notebooks

24. First person step = 80 cm

Second person step = 85 cm

Third person step = 90 cm

Minimum distance each should walk so that all the same distance in complete steps.

By taking L.C.M. = 80, 85, 90

$= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 17$

= 12240 cm

= $\because$ 100 cm = 1 m

= 12240/100

= 122 m 40 cm

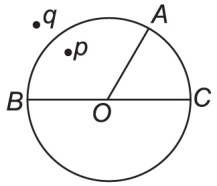
2	80, 85, 90
2	40, 85, 45
2	20, 85, 45
2	10, 85, 45
3	5, 85, 45
3	1, 85, 15
5	1, 85, 5
17	1, 17, 1
	1, 1, 1

25. (i) 1 (ii) 3 (iii) 2 (iv) 2

26. (i) Centre (ii) *OA* radius

(iii) Diameter (iv) *AOC* (v) *OA*

(vi) *p* (vii) *q* (viii) *AC*



ASSESSMENT - II

1. (i) Here 1 bulbs = 10 bulbs

Bulbs purchased during February

$= 2 \times 10 + \frac{1}{2} \times 10$

$= 20 + 5 = 25$

(ii) Bulbs purchased in January = $2 \times 10 = 20$

Bulbs purchased in February

$= 2 \times 10 + \frac{1}{2} \times 10$

$= 20 + 5 = 25$

Bulbs purchased in March = $3 \times 10 = 30$

Bulbs purchased in April = $3 \times 10 + \frac{1}{2} \times 10$

$= 30 + 5 = 35$

Total bulbs purchased in four months

= 20 + 25 + 30 + 35 = 110 bulbs

2. $\frac{2}{5}$ by $\frac{8}{10}$

$= \frac{2}{5} \div \frac{8}{10} = \frac{2}{5} \times \frac{10}{8} = \frac{1}{2}$

3. 0.125

$= \frac{125}{1000} = \frac{1}{8}$

4. $5\frac{6}{7}$

$= \frac{5 \times 7 + 6}{7} = \frac{41}{7}$

Hence, $\frac{41}{7}$ is an improper fraction.

5. Given, perimeter of rectangle = 130 cm

130 = 2 (l + b)

Breadth of Rectangle = 30 cm

Length of Rectangle = ?

$\therefore$ 130 = 2 (l + 30)

= 65 = l + 30

= 65 − 30 = l

l = 35 cm

6. 1 l = 1000 ml

2 l = 2 × 1000 ml

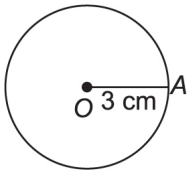
= 2000 ml

Hence required ratio → 500 : 2000

$= \frac{500}{2000} = \frac{5}{20} = \frac{1}{4}$

= 1 : 4

7.



8. Number of line symmetry in a square is 4

9. Nasreen brought cloth for shirt = 3 m 20 cm

Trouser = 2 m 5 cm

Total length of cloth = 3 m 20 cm

+ 2 m 5 cm

5 m 25 cm

10. 240 in the ratio 3 : 5

Acc. to question. Let the required ratio be x

= 3x + 5x = 240

= 8x = 240

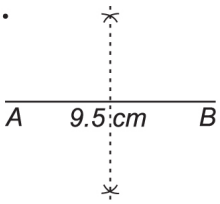
$= x = \frac{240}{8}$

= x = 30

Then, 3x = 3 (30) = 90

5x = 5 (30) = 150

11.



12. Side of square = 8 m 5 dm

= 8 × 10 dm + 5 dm

= 80 dm + 5 dm

= 85 dm

[$\because$ 10 dm = 1 m]

$= \frac{85}{10}$ m

= 8.5 m

Area of square = $S \times S = S^2 = (8.5)^2$

= 8.5 × 8.5

= 72.25 m^2

Cost of fixing tiles for 1 m^2 = ₹ 300

= 72.25 m^2 = ₹ 300 × 72.25

= ₹ 21675

13.

Days	**Number of Maruti Van manufactured**	**1 Van = 200 Maruti Van**
Monday	14	14 × 200 = 2800
Tuesday	24	24 × 200 = 4800
Wednesday	12	12 × 200 = 2400
Thursday	11	11 × 200 = 2200
Friday	18	18 × 200 = 3600
Saturday	15	15 × 200 = 3000

a. Least number of Maruti Van manufactured on Thursday is only 2200.

b. Maximum number of Maruti Van manufactured on Tuesday is total 4800.

14. $\frac{5}{8} + \frac{2}{5} + \frac{3}{4}$

Making denominators equal

$= \frac{5}{8} = \frac{5}{8} \times \frac{5}{5} = \frac{25}{40}$ ...(1)

$= \frac{2}{5} = \frac{2}{5} \times \frac{8}{8} = \frac{16}{40}$ ...(2)

$= \frac{3}{4} = \frac{3}{4} \times \frac{10}{10} = \frac{30}{40}$ ...(3)

Then, Acc. to question

$= \frac{25}{40} + \frac{16}{40} + \frac{30}{40} = \frac{71}{40} = 1\frac{31}{40}$

As $\frac{71}{40}$ is an improper fraction, so we can also write it as mixed fraction is $1\frac{31}{40}$

15. (a)

₹	p
12	40
−6	36
6	04

= ₹ 6.04

(b)

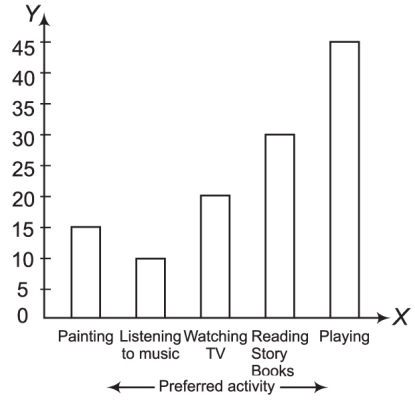
kg	g
2	107
−0	314
1	793

Since 107 < 314 so we borrow 1 unit from kg *i.e.*, 1000 g now it becomes 1107 g

Hence 1107 − 314 = 793 And, 1 kg is left in kg column.

So, the difference is 1 kg 793 g

16. (i)



(ii) Reading story books is preferred by most of the students other than playing.

17. Do yourself

18. Time taken by Jaidev = $2\frac{1}{5} = \frac{11}{5}$ minute

Time taken by Rahul = $\frac{7}{4}$ min

Hence making equal denominators.

$= \frac{11}{5} = \frac{11}{5} \times \frac{4}{4} = \frac{44}{20}$

$= \frac{7}{4} = \frac{7 \times 5}{4 \times 5} = \frac{35}{20}$

Since denominators are equal, the fractions with lower numerator is smaller

is $\frac{35}{20} = \frac{7}{4}$ is Rahul takes less time

By $\frac{44}{20} - \frac{35}{20} = \frac{9}{20}$

Hence, Rahul takes less time by $\frac{9}{20}$ min.

19. Pinky runs around a square field of side = 75 m

Hence its perimdes = $4 \times S$

= 4 × 75 m

= 300 m

Bob runs around a rectangular field having length = 160 m, breadth = 105 m

Perimetes = 2 (l + b)

= 2 (160 + 105)

= 2 (265)

= 530 m

Bob covers more distance by (530 m − 300)

= 230 m

20. (a) Total people in an office = 250

No. of men in an office = − 150

Hence, no. of women in an office = 100

Ratio of Total people to that of men = Total : Men

= 250 : 150

= 5 : 3

(b) Ratio of total number of people to that of women = 250 : 100

= 5 : 2

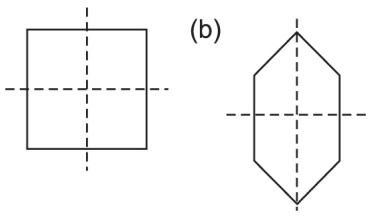
(c) Ratio of number of men to that of women

= 150 : 100

= 3 : 2

21. A and B letter

22. (a) (b)



23. (a) 15 cm

($\because$ 100 cm = 1 m)

= 15 ÷ 100

= 0.15 m

(b) 2 m 45 cm

2 × 100 cm + 45 cm

= 200 cm 45 cm

= 245 cm

($\because$ 100 cm = 1 m)

= 245 ÷ 100

= 2.45 m

(c) 9 m 7 cm

9 × 100 cm + 7 cm

= 900 cm + 7 cm

= 907 cm

($\because$ 100 cm = 1 m)

= 907 ÷ 100 = 9.07 m

(d) 419 cm

($\because$ 100 cm = 1 m)

419 ÷ 100

= 4.19 m

24. A bucket contains milk = $4\frac{3}{4}l = \frac{19}{4}l$

A can contains milk = $2\frac{3}{4}l = \frac{11}{4}l$

Total amount of milk contains $\frac{19}{4} + \frac{11}{4}$

$= \frac{30}{4} = \frac{15}{2}$

$= 7\frac{1}{2}l$

25. Length = 60 m

Width = 3 m

Perimeter = 2 (l + w)

= 2 (60 + 3)

= 2 × 63

= 126 m

Total tiles = $\frac{\text{Perimeter of Path}}{\text{Perimeter 1 tile}}$

Side of square tile = 25 cm

Perimeter of square tile = 4 (S)

= 4 (25) = 100 cm

= $\because$ 100 cm = 1 m

= 1 m

$= \frac{126 \text{ m}}{1} = 126$ tiles

$\because$ Since total 126 tiles needed to make this path.

$\therefore$ Tiles will be needed in one row along its width is along 3 m

= 42 tiles

42 tiles covers = 1 row

then, 126 tiles cover = $\frac{1}{42} \times 126 = 3$ rows

No. of tiles, used to make this path = Total no. of tiles = 126 tiles

26. (a) Car travels 180 km in $2\frac{1}{2}$ hr

180 km travelled in = $\frac{5}{2}$ hr

Hence 60 km will be travelled in = $\frac{\frac{5}{2} \times 60}{180}$

$= \frac{5}{180 \times 2} \times 60$

$= \frac{5}{6}$ hr. ($\because$ 1 hr = 60 min)

$= \frac{5}{6} \times 60 = 50$ min

= 50 min

Car covers 60 km in 50 min

(b) Distance covered in $\frac{5}{2}$ hr = 180 km

Distance covered in 2 hr = $\frac{180}{\frac{5}{2}} \times 2$

$= \frac{180 \times 2 \times 2}{5}$

= 36 × 2 × 2

= 144 km

PRACTICE SECTION
CHAPTER - 1
SET - 1

1. Do yourself

2. Delhi = 900000
Kolkata = 500000
Mumbai = 500000
Chennai = 300000
Kolkata and Mumbai have approximately the same population.

3. Monthly salary of Manoj = 42,691
Round off to nearest thousand = 43000
Yearly income = 43000 × 12 = 516000

4. Do yourself

5. Predecessor 9999998, Successor 10000000

6. 8000000

7. MMMCCCXIV
1000 + 1000 + 1000 + 100 + 100 + 100 + 10 + 4
= 3314

8. False

9. Smallest = 10000000
Indian – One crore, International – Ten million
greatest = 99999999
Indian – Nine crore ninety nine lakh ninety nine thousand nine hundred ninety nine
International – Ninety nine million nine hundred ninety-nine thousand nine hundred ninety nine

10. (a) = (b) >

11. (a) 6722000 (b) 6720000 (c) 6700000

12. Cost of laptop = 45762
Cost of desktop = – 35912
Actual difference = 9850
Estimated
laptop = 46,000
desktop = – 36,000
10,000
Actual of round off 10,000 Estimated round off 10,000

13. about 40,000 times

14. Ascending order 2, 5, 6, 7, 8, 9
Descending order 9, 8, 7, 6, 5, 2

SET - 2

1. (a) 3934560 (b) 100 (c) 1000

2. (a) LXXXI (b) XCIV

3. a. XCIV – XL (X – X; C – L = L) LIV
b. LIX + XXXVI + IX = CIV

4. (a) 159 (b) 400

5. ₹ 6720

6. A box can hold = 154 candles
Round off = 150 candles
Required no. of box to hold = 38,46,000 ÷ 150
= 25640

7. In a village there are = 5106 men
In a village there are = 3982 women
In a village there are = 2016 children
Round off the number to the nearest hundred
5100
4000
+ 2000
11100 population

CHAPTER - 2
SET - 1

1. Do yourself

2. 0 for 508204, 4 for 496872

3. 5 **4.** 900

5. City product garbage in 2003 = 54 million kg
In 2004, reduced the garbage to = 50 million kg
54 – 50 = 4 million kg garbage is reduced in a year
$= \frac{4}{365}$ = 0.010958 in a day
Then near about = 0.010958
∵ 1 million = 1000 thousand = 1000000
= 10,000 kg garbage reduced in a day

6. Greatest = 350 × 140 = 143500
Smallest = 120 × 130 = 15600

7. Eight hundred twenty six million nine hundred thirty four thousand one hundred eighty two

8. Wrong = (b)
Right = (a), (c), (d)

9. DCX and DXC

10. Ascending - LXIII, LXXVI, CDLXV, DCCXLVI

Descending - DCCXLVI, CDLXV, LXXVI, LXIII

11. Multiply XC with XX

(XC) × (XX)

= 90 × 20 = 1800

= 1000 + 500 + 300

M D CCC

= MDCCC

12. LXI

13. MDCXXVI, MDCXXIV, MCDXXVI, MCDXXIV

14. (a) MDCXXIV

= 1000 + 500 + 100 + 10 + 10 + 4

= 1624

1623 1624 1625

= 1000 + 500 + 100 + 10 + 10 + 3

= MDCXXIII

= MDCXXV

(b) MCDXXV, MCDXXVII

15. (a) MXCIX

(b) There is no roman numeral for zero

SET - 2

1. (a) $30 - 8 \div 2 \times 3$

$= 30 - 4 \times 3$

$= 30 - 12 = 18$

(b) $32 \div 8 - 2 + 6$

$= 4 - 2 + 6$

$= 4 + 4 = 8$

(c) 10 (d) 18

(e) $85 - 20 \div 4 \times 8$

$= 85 - 5 \times 8 = 85 - 40$

$= 45$

2. (a) $5 \times \frac{1}{2}$ of $16 \div 4 + 7 - 2$ of 2

$= 5 \times 8 \div 4 + 7 - 4$

$= 5 \times 2 + 7 - 4$

$= 10 + 7 - 4$

$= 17 - 4 = 13$

(b) 46

(c) $42 \div 6 \times 2 + \frac{1}{7}$ of 35×2

$= 7 \times 2 + 5 \times 2$

$= 14 + 10 = 24$

(d) $54 \times 3 \div 6 - 16 \times 3 \div \frac{3}{4}$ of 32

$= 54 \times \frac{1}{2} - 16 \times 3 \div \frac{3}{4} \times 32$

$= 27 - 16 \times 3 \div 24$

$= 27 - 16 \times \frac{1}{8}$

$= 27 - 2 = 25$

3. (a) $18 - [5 + \{16 - (9 - 2)\}]$

$= 18 - [5 + \{16 - 9 + 2\}]$

$= 18 - [5 + 9]$

$= 18 - 14 = 4$

(b) 43 (c) 30

(d) $96 \div [18 - \{63 \div 7 - (18 - 5 \text{ of } 3)\}]$

$= 96 \div [18 - \{63 \div 7 - 18 + 5 \text{ of } 3\}]$

$= 96 \div [18 - 9 + 18 - 15]$

$= 96 \div 12$

$= 8$

(e) 44 (f) 5

(g) $72 - 12 \div 3$ of $2 + 2\,(18 - 6) \div 4$

$= 72 - 12 \div 6 + 2 \times 12 \div 4$

$= 72 - 6 + 2 \times 3$

$= 72$

(h) 4

(i) $20 - \{6 + 4 - (6 + \overline{5 - 3})\}$

$= 20 - \{6 + 4 - (6 + 2)\}$

$= 20 - \{6 + 4 - 6 - 2\}$

$= 20 - 2 = 18$

MCQS

5. $30 \div 3$ of $(2 - \overline{14 - 4})$

$= 30 \div 3$ of $(2 - 10)$

$= 30 \div 3$ of $- 8$

$= 30 \div -24 = -1.25$

10. Pattern = $1 = (1)^3$

$8 = (2)^3$

$27 = (3)^3$

$64 = (4)^3$

$125 = (5)^3$

$216 = (6)^3$

11. $15 + 17 - (8 \div 2) \times 3$

$= 15 + 17 - 4 \times 3$

$= 15 + 17 - 12$

$= 32 - 12 = 20$

14. $15 \div (14 + 1) - 9 \times 3 + 7\ (4 + 5)$ is ...

$= 15 \div 15 - 9 \times 3 + 7 \times 9$

$= 1 - 9 \times 3 + 63$

$= 1 - 27 + 63 = 37$

CHAPTER - 3

SET - I

1. 4 **2.** 4186

3. They will ring together

2	2, 4, 6, 8, 10, 12
2	1, 2, 3, 4, 5, 6
2	1, 1, 3, 2, 5, 3
3	1, 1, 3, 1, 5, 3
5	1, 1, 1, 1, 5, 1
	1, 1, 1, 1, 1, 1

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

In 30 minutes they will ring together

$= 30 \times 60 = \frac{1800}{120} = 15$ times

4. Do yourself

5.

5	15, 25, 40, 75
5	3, 5, 8, 15
3	3, 1, 8, 3
8	1, 1, 8, 1
	1, 1, 1, 1

$= 5 \times 5 \times 3 \times 8$

$= 600$

$= 9999 - 399$

$= 9600$ is the greatest four digit number which is divisible by 15, 25, 40 and 75

```
600) 9999 (16
   - 600↓
     3999
   - 3600
     399
```

6. (i) $2 \times 2 \times 3 \times 61$ (ii) $5 \times 5 \times 29$

7. Do yourself

8. As 2 is the factor of 4 then 2 will be the factor of any multiple of 4 as

$= 4 \times 2 = 8 = (2 \times 2 \times 2)$

$= 4 \times 3 = 12 = (2 \times 2 \times 3)$

$= 4 \times 4 = 16 = (2 \times 2 \times 2 \times 2)$

$= 4 \times 5 = 20 = (2 \times 2 \times 5)$

10. 1 and 0 **11.** 28 **12.** $22 = 2 \times 11$

13. He should cut the ribbon of

```
56) 72 (1
  - 56
    16) 56 (3
      - 48
        8) 16 (2
          - 16
            0
```

= 8 m

SET - 2

1. 101, 103, 107, 109, 113, 127, 131, 139, 149

2. Yes (3, 5); (5, 7); (7, 9)

3. $1 - 0 + 8 - 2 + 0 - 3 + 7$

$= 11$ (which is divisible by 11 so this number also divisible by 11)

4. (17, 71), (37, 73), (79, 97)

5. ₹ 8 **6.** 120 m **7.** 96

8. HCF × LCM = First number × second number

$= 11 \times 693 = 77 \times$ second number

$= \frac{11 \times 693}{77}$ = second number

$= 99$

9.

2	12, 15, 20
2	6, 15, 10
3	3, 15, 5
5	1, 5, 5
	1, 1, 1

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

= 60 pencils

10.

```
350) 450 (1
   - 350
     100) 350 (3
       - 300
         50) 100 (2
           - 100
             0
```

size of till = 50 cm

11.

```
405) 513 (1
   - 405
     108) 405 (3
       - 324
         81) 108 (1
           - 81
             27) 81 (3
               - 81
                 0
```

```
27) 783 (29
  - 54
    243
  - 243
    0
```

So the length of the longest tape will be = 9 cm

12. Find the L.C.M. of thus numbers. [300 ans.]

13. Find the HCF [25 l ans.]

14. Find LCM [360 ans.]

15.
$$24\overline{)36}\,(1$$
$$-24$$
$$12\overline{)24}\,(2$$
$$-24$$
$$0$$

So there will be maximum 12 students in a row.

MCQS

10. (Hint) We know that if the sum of digits of a number is divisible by 3 then the number also divisible by 3. [(b) ans.]

CHAPTER - 4

SET - I

1. (a) $90 + 73 + 10 + 7 = 100 + ❑$
$= 180 = 100 + ❑$
$= 180 - 100 = ❑$
$= 80$

(b) 100

(c) $5 \times 87 \times 20 = ❑ \times 87$
$= 8700 = ❑ \times 87$
$= \frac{8700}{87} = ❑$
$= 100$

(d) 173

2. (a) No, Yes (b) Yes, No (c) Yes, No

3. (a) True (b) False
(c) True (d) False

4. (a) 119 (b) 28

5. Remainders are 3 and 4 respectively
So we subtract these numbers first
as $47 - 3 = 44$
$92 - 4 = 88$
So we have to find the common factor of 44 and 88 between 20 and 30
so the number is 22

6. False

7. Distributive property of multiplication over addition

8. Yes **9.** Yes

10. (a) Commutative (b) Associative
(c) Distributive

11. (a) $y + x$ (b) $(7a)b$ (c) $5a + 5b$

SET - 2

1. (a) 0, Additive identity
(b) 5, Commutative property
(c) 1, Multiplicative identity
(d) 0, Multiplicative property of zero

2. (a) 90 (b) 83590

3. Zero

4. (a) $985 \times (100 + 5)$
$= 98500 + 4925$
$= 103425$

(b) $1008 \times (100 - 5)$
$= 100800 - 5040$
$= 95760$

(c) $4096 \times (100 - 9)$
$= 409600 - 36864$
$= 372736$

5. $25 \times 40 + 25 \times 8$
$= 25 (40 + 8)$
$= 25 \times 48$
$= 1200$

6. No **7.** No

8. Virat and his father covered in 7 days = 360×7
In 3 days = 360×3
So they covered total
$= 360 \times 7 + 360 \times 3$
$= 360 (7 + 3)$
$= 360 \times 10$
$= 3600$ km

9. (Hint) calculate = 96×5826
$= (100 - 4) \times 5826$
= ₹ 559296 ans.

10. Company manufactures per = 2650 computers
In 8 months = $2650 \times 8 = 21{,}250$ computers
Company have to made annually
$= 21{,}250 + 8250$
$= 29{,}450$

11. Calculate $45000 - (6125 + 22340)$
= 16535 tonnes ans.

MCQS

14. Hint- 15 (32 + 68) ⇒ (c) ₹ 1500 ans.

CHAPTER - 5

SET - I

1. (a) 13 (b) 10 (c) 6 (d) 9

2. (a) $|25| + |-11|$ (b) $|-96| + |-73|$
$= +(25 + 11)$ $= -(96 + 73)$
$= 36$ $= 169$

3. (a) < (b) <

4. − 32, − 23, − 4, 0, 2, 17

5. − 4 and 0

6. (a) − 10 (b) − 20

7. (a) − 6 (b) + 9 (c) + 5

8. (a) < (b) < (c) < (d) <

9. (a) $(-4) + (-8) + (-2)$
$= -(4 + 8 + 2)$
$= -14$

(b) + 1

(c) $(-8) + (-5) + (+4)$
$= -(8 + 5) + (+4)$
$= -13 + 4 \quad \Rightarrow -(13 - 4)$
$= -9$

(d) − 8

(e) $(+52) + (+12) + (+78)$
$= +(52 + 12 + 78)$
$= +142$

(f) − 181

10. (a) $(-400) \times (-40) \times (-4)$
$= +16000 \times -4 \quad \therefore (-) \times (-) = +$
$= -64000 \quad \because (+) \times (-) = -$

(b) $(-734) \times (-11)$
$= +8074 \quad \because (-) \times (-) = +$

(c) $+186 \div -31 = -6 \quad \because (+) \div (-) = -$

(d) $-364 \div 7 = 52 \quad \because (-) \div (-) = -$

11. $(-51°C) - (-76°C)$
$= (+76°C - 51°C) = 25°C$

12. ₹ 6 **13.** − 257

14. (Hint) Calculate = $75° - (-25°) = 100°F$ ans.

15. (Hint) Calculate = 52 + 17 − 10
69 − 10 = 59 m

SET - 2

1. (a) $= -(1 + 0)$
$= -1$

(b) $(-21) - (21)$
$= -(21 + 21) = -42$

(c) − 20

2. (a) $(-12) \times (6) \times (-5) \times (3)$
$= -72 \times -15 \quad \because (-) \times (-) = (+)$
$= +1080 \quad (+) \times (-) = -$

(b) − 50000

(c) $(-5) \times (5) \times (-5)$
$-25 \times -5 = +125$

3. (a) $(-108) \div (-12)$
$\because (-) \div (-) = +$
$\therefore = +9$

$12\overline{)108}\,(9$
-108
0

(b) − 9 (c) − 9

6. (a) 1 (b) − 3 (c) 5 (d) − 5

7. Sudhir had = 25,750
Reena had = − 13,570
Net balance = 12,180

8. 255 m west

9. (a) $(-19)(-1) + (-34) + 7$
$= (+19) + (-27)$
$= -8$

(b) $(-6) - [(-48) + (-12)] + (-2) - 6$
$= (-6) - [-60] + (-2) - 6$
$= -6 + 60 - 8$
$= 46$

(c) 5602

10. Book seller's profit = ₹ 4/Book
for 1 book = 4
for 3 books = $\frac{4}{1} \times 3 =$ ₹ 12
Book seller's loss = ₹ 1/pencil
for 1 pencil = ₹ 1
for 6 pencil = ₹ 1 × 6 = ₹ 6
Total profit = 12 − 6 = ₹ 6

11. (Hint) Team × scored
= − 30 20 5 = − 30 + 25 = − 5
Team B scored
= 10 0 − 20 = − 20 + 10 = − 10
Team A scored more

12. Temperature on Monday = $-2°C$

Temperature on Tuesday = $-2°C + 4°C$

$= +2°C$

Temperature on Wednesday = $+2°C - 5°C$

$= -3°C$

13. Ran gets 4 correct answer = $4 \times 5 = 20$ marks

6 in correct answer = $6 \times 2 = 12$ marks

Total marks he scored = $20 - 12 = 8$ marks

14. (Hint) $65 - 27 = 38$ ans.

MCQS

11. Diver 20 m below the sea level = -20 m

He goes down farther 10 m = -10 m

His new position will be

$(-20) + (-10) = -30$ m below the sea level

Ans. (c)

CHAPTER - 6
SET - I

1. a. $\frac{\square}{8} = \frac{18}{24}$

If they both are equivalent fraction

Then $\frac{\square}{8} = \frac{18}{24}$ (By cross multiply)

$= \square \times 24 = 18 \times 8$

$= \square = \frac{144}{24} = 6$

b. 6

c. $\frac{\square}{5} = \frac{21}{35}$

$= \square \times 35 = 21 \times 5$

$= \square = \frac{21 \times 5}{35} = 3$

d. 36

2. Find equivalent fraction. $\left[\frac{1}{2} \text{ ans.}\right]$

3. Fraction = $5\frac{7}{12}$

First we convert it in improper fraction = $\frac{67}{12}$

Equivalent fraction = $\frac{67}{12} \times \frac{2}{2} = \frac{134}{24}$

6. Fraction of her balloons was not yellow

$= \frac{3}{12} + \frac{4}{12} + \frac{3}{12} = \frac{3+4+3}{12} = \frac{10}{12} = \frac{5}{6}$

7. $\frac{12}{17}$ **8.** $\frac{9}{11}$

9. $\frac{1}{5} \rightarrow$ fair complexion

$\frac{1}{5} \rightarrow$ dark complexion

$\frac{3}{5} \rightarrow$ wheatish complexion

$= \frac{1}{5} + \frac{3}{5} = \frac{1+3}{5} = \frac{4}{5}$

10. (a) $\frac{7}{12} \square \frac{6}{7}$

First we make the denominator same

$= \frac{7}{12} \times \frac{7}{7} = \frac{49}{84}$; $\frac{6}{7} \times \frac{12}{12} = \frac{72}{84}$

$\therefore = \frac{49}{84} < \frac{72}{84}$

$= \frac{7}{12} < \frac{6}{7}$

(b) $<$ (c) $>$ (d) $>$

11. Abhay spent = $\frac{1}{3}$ dancing

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

He spent time in all together = $\frac{1}{3} + \frac{1}{6} = \frac{6+3}{18}$

$= \frac{9}{18} = \frac{3}{6} = \frac{1}{2}$

12. (Hint) = $\frac{1}{2} + \frac{1}{8} = \frac{4+1}{8} = \frac{5}{8}$

13. (Hint) = $\frac{1}{6} + \frac{5}{12} = \frac{2+5}{12} = \frac{7}{12}$

14. Vinita read = $15\frac{1}{3}$ pages (Saturday)

$= 17\frac{7}{12}$ pages (Sunday)

$= 17\frac{7}{12} - 15\frac{1}{2}$

$= \frac{211}{12} - \frac{46}{3}$

$= \frac{211 - 184}{12} = \frac{27}{12} = \frac{9}{4}$

Vinita read $\frac{9}{4}$ pages more on Saturday than on Sunday

15. (Hint) $= 2\frac{1}{5} - 1\frac{1}{10}$

$= \frac{11}{5} - \frac{11}{10} \Rightarrow \frac{22-11}{10} \Rightarrow \frac{11}{10} \Rightarrow 1\frac{1}{10}$ kg.

SET - 2

1. (a) $\frac{6}{7} \times \frac{2}{2} = \frac{12}{14}; \frac{6}{7} \times \frac{3}{3} = \frac{18}{21}; \frac{6}{7} \times \frac{4}{4} = \frac{24}{28}$

$= \frac{6}{7} \times \frac{5}{5} = \frac{30}{35}$

2. (a) $\frac{17}{13} \times \frac{3}{3} = \frac{51}{39}$ (d) $\frac{11}{13} \times \frac{6}{6} = \frac{66}{78}$

3. (a) $\frac{36}{54}$ HCF of numerator and denominator is 18

Then $= \frac{36 \div 18}{54 \div 18} = \frac{2}{3}$

(b) $\frac{3}{5}$ (c) $\frac{1}{3}$ (d) $\frac{16}{17}$

4. (a) $\frac{3}{8}, \frac{5}{8}, \frac{7}{8}, \frac{11}{8}, \frac{13}{8}$

(b) $\frac{3}{4}, \frac{5}{8}, \frac{8}{9}, \frac{2}{3}$

ascending order $\rightarrow$

$= \frac{3}{4}, \frac{5}{8}, \frac{8}{9}, \frac{2}{3}$

$= \frac{54, 45, 64, 48}{72}$

$= \frac{45}{72} < \frac{48}{72} < \frac{54}{72} < \frac{64}{72}$

$= \frac{5}{8} < \frac{2}{3} < \frac{3}{4} < \frac{8}{9}$

3	4, 8, 9, 3
3	4, 8, 3, 1
4	4, 8, 1, 1
2	1, 2, 1, 1
	1, 1, 1, 1

$3 \times 3 \times 4 \times 2 = 72$

5. (Hint) Make the denominator same and then compare

(a) $\frac{1}{2}, \frac{1}{5}, \frac{1}{17}$ (b) $\frac{4}{5}, \frac{7}{10}, \frac{2}{3}$

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

(b) $\frac{3}{10} + \frac{2}{15}$

$= \frac{9+4}{20} = \frac{13}{30}$

(c) $\frac{11}{12}$ (d) $\frac{17}{12}$ (e) $3\frac{4}{9}$

(f) $1\frac{4}{5} + 2\frac{3}{10}$

$= \frac{9}{5} + \frac{23}{10} = \frac{54+69}{30} = \frac{123}{30}$

(g) $1\frac{2}{3}$ (h) $\frac{19}{20}$

7. (a) $\frac{5}{9}$

(b) $\frac{2}{5} - \frac{1}{10}$

$= \frac{4-1}{10} = \frac{3}{10}$

(c) $\frac{1}{6}$ (d) $4\frac{1}{2}$

(e) $6\frac{5}{12} - \frac{2}{3}$

$= \frac{77}{12} - \frac{2}{3} = \frac{77-8}{12} = \frac{69}{12} = \frac{23}{4}$

8. (a) $\frac{3}{5} + 2\frac{4}{5} + \frac{2}{5}$ (b) $1\frac{17}{30}$

$= \frac{3}{5} + \frac{14}{5} + \frac{2}{5}$

$= \frac{3+14+2}{5} = \frac{19}{5}$

(c) $1\frac{1}{2} - 2\frac{1}{4} + 5\frac{3}{4}$

$= \frac{3}{2} - \frac{9}{4} + \frac{23}{4} = \frac{6-9+23}{4}$

$= \frac{20}{4} = 5$

(d) $8\frac{11}{12}$

(e) $2\frac{1}{8} + 1\frac{1}{2} - \frac{7}{16}$

$= \frac{17}{8} + \frac{3}{2} - \frac{7}{16}$

$= \frac{34+24-7}{16} = \frac{51}{16}$

$= 3\frac{3}{16}$

10. Wife got $= \frac{2}{3}$ part

Son got = $\frac{1}{4}$ part

remaining = $1 - \frac{2}{3} + \frac{1}{4}$

$= \frac{12 - 8 - 3}{12} = \frac{1}{12}$

$\frac{1}{12}$ part of his property, his daughter got.

11. Manohar has = 11 caws

He purchases = 5 more cows

Total = 16 cows

He gives $\frac{1}{2}$ to his eldest son

$\frac{1}{4}$ to his middle son and remaining to the youngest son

Number of cows

Eldest son receive = $\frac{1}{2} \times 16 = 8$

Middle son receive = $\frac{1}{4} \times 16 = 4$

remaining get youngest son = 16 – 8 – 4

= 4 cows

12. (Hint) $\frac{3}{5} - \frac{1}{6} \Rightarrow \frac{18 - 5}{30} \Rightarrow \frac{13}{30}$ ans.

13. (Hint) $6\frac{1}{2} - 2\frac{2}{3}$

$= \frac{13}{2} - \frac{8}{3} \Rightarrow \frac{39 - 16}{6} \Rightarrow \frac{23}{6} \Rightarrow 3\frac{5}{6}$ m.

14. Four families carried total 4 cake

We eaten total = $4 \times \frac{3}{4} = 3$ cakes

MCQS

2. Fraction of 1 m is 70 cm

$= \frac{70 \text{ cm}}{100 \text{ cm}}$ [$\because$ 1 m = 100 cm]

$= \frac{7}{10}$ [(d) ans.]

4. First find HCF of 91 and 195 then divide both by their HCF

8. Simplest form of $\frac{16}{18} = \frac{8}{9}$

Then we make denominator 45 by multiplying both the numerator and denominator to 5

$= \frac{8}{9} \times \frac{5}{5} = \frac{40}{45}$

11. $\frac{1}{2} + \frac{\square}{8} + \frac{1}{8} = 1$

$= \frac{\square}{8} + \frac{1}{8} + \frac{1}{2} = 1$

$= \frac{\square}{8} + \frac{1 + 4}{8} = 1$

$= \frac{\square}{8} + \frac{5}{8} = 1$

$= \frac{\square}{8} = 1 - \frac{5}{8}$

$= \frac{\square}{8} = \frac{8 - 5}{8} = \frac{3}{8}$

$= \square = 3$

CHAPTER - 7
SET - I

1. (a) 201.28 + 39.19 – 10.27

201.28	240.47
+ 39.19	– 10.27
240.47	230.20

(b)

111.121	322.332
+ 211.211	– 100.121
322.332	222.211

2. 6.14 – (2.99 + 7.01) = 3.86

3. 902.57 – 9 = 893.57

4. Add these three decimals.

5. (a) 116.09 cm (b) Manali

(c) 32.16 cm (d) 28.7 cm

(e) 32.5, 61.2, 54.55, 29.04, 39.2, 42.5

For comparing decimals we have to do these steps

1. First we find smallest and greatest whole numbers.
2. If the whole numbers are same then we go to at tenth places, hundredth place, thousandth place and so on.
3. Then we can arrange all decimals in descending order or ascending order.

Ascending order = 29.04 < 32.5 < 39.2 < 42.5 < 54.55 < 61.2

Descending order = 61.2 > 54.55 > 42.5 > 39.2 > 32.5 > 29.04

(f) $\frac{\text{Gulmarg}}{\text{Manali}} = \frac{42.5\text{ cm}}{61.2\text{ cm}} = \frac{425}{612}$

(g) Kullu Darjeeling

29.04 39.2

like decimals

= 29.04 39.20

(h) Monali Gulmarg

61.2 cm 42.5 cm

61 > 42

(k) Kashmir

$54.55 = 50 + 4 + \frac{5}{10} + \frac{5}{100}$

$= 50 + 4 + 0.5 + 0.05$

Kullu

$29.04 = 20 + 9 + \frac{0}{10} + \frac{4}{100}$

$= 20 + 9 + 0 + 0.04$

SET - 2

1. (Hint) $1000 - 763.25 \Rightarrow 236.75$

2.

9.125	25.2	128.367
+ 12.360	+ 103.167	− 21.485
21.485	128.367	106.882 ans.

3. $8.7 + 6.25 + 9.50 \Rightarrow 24.45$

4. $8.625 - 8.500 \Rightarrow 0.125$

5. $210 - (180.5 + 25.6) \Rightarrow 3.9$

6. $3.85 + 2.63 \Rightarrow 6.48$

7. Sudhir walked on Monday = $1\frac{3}{4}$ km

Sudhir walked on Tuesday = $1\frac{1}{4}$ km

Sudhir walked on Wednesday = $1\frac{1}{2}$ km

$= 1\frac{3}{4}, 1\frac{1}{4}, 1\frac{1}{2}$

$= \frac{7}{4}, \frac{5}{4}, \frac{3}{2}$

$= \frac{756}{4} = \frac{7}{4}, \frac{5}{4}, \frac{6}{4}$

descending order $\frac{7}{4}, \frac{6}{4}, \frac{5}{4}$

decimal form = 1.75 > 1.50 > 1.25

8. One pen's length = 93 mm

Three pen's length = 93 × 3 = 279 mm

∵ 1 cm = 10 mm

10 mm = 1 cm

279 mm = $\frac{1}{10} \times 279 = 27.9$ cm

MENTAL MATHEMATICS

7.

700
30
6
0.2
+ 0.007
736.207

MCQS

13. Rithik obtained = 13.5 marks more than Ruchika

∵ Ruchika's marks were = 52

Then Rithik marks = 52 + 13.5

52
+ 13.5
65.5 [(b) ans.]

14. Lata spent on pen = 18.75

Lata spent on pencil = + 2.25

Total amount = 21.00 [(c) ans.]

15. 20.05 − 4.50 = 15.55 [(a) ans.]

CHAPTER - 8

SET - I

1. Tanu has = 20 erasers

Anu has × more erasers

$= 20 + x$

2. $89 + y$

3. Variables; n, a and p

4. 3 namely x, y, z

5. Ram had coins = x

he spent = 3 coins

$x - 3$

Now he had = 8 coins

$\therefore \quad x - 3 = 8$

SET - 2

1. (a) Product of y and z = $y \times z = yz$

2 less = $yz - 2$

(b) Two thirds of $y = \frac{2y}{3}$

x more = $\frac{2y}{3} + x$

(c) Product of 6 and q = $6q$

Half of p added = $\frac{1}{2}p = \frac{p}{2}$

$= 6q + \frac{p}{2}$

(d) $\frac{x}{2} - 3$

(e) $\angle A + \angle B + \angle C + \angle D = 360°$

2. $\frac{2}{3}, -7, 3, -1, 1$

4.

	Terms	Factors
(a)	x^3	$x \times x \times x$
	$3y^2$	$3 \times y \times y$
	$7xyz$	$7 \times x \times y \times z$
(b)	$\frac{4}{5}a^2b$	$2 \times 2 \times \frac{1}{5} \times a \times a \times b$
	$\frac{-7}{2}ab^2$	$-7 \times \frac{1}{2} \times a \times b \times b$
	$\frac{5}{3}ab$	$5 \times \frac{1}{3} \times a \times b$
	$5y$	$5 \times y$
	-10	-2×5

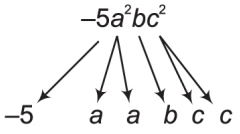
5. Monomial - (a), (g)

Binomial - (c), (e)

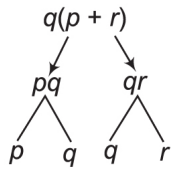
Trinomial - (b), (d), (f)0

6. (a) $7ab^2$ (b) $3a^3b^2$

7. (a)



(b)



8. (a) 5 more than twice a number

(b) Half of a number a is decreased by 5

(c) Four times of z gives p

(d) Product of 2, π and r gives c

9. (a) $7x - 4y + 3x^2y + 4xy^2$

(b) $2ab - 7bc - 2ca + 7$

MENTAL MATHS

1. $x = 4, \quad y = 3, \quad z = 1$

a. $x^2 + y + z$

$= (4)^2 + 3 + 1$

$= 16 + 3 + 1$

$= 20$

b. $3x - 2y + z$

$3 \times 4 - 2 \times 3 + 1$

$= 12 - 6 + 1 = 7$

MCQS

10. $a = 2, b = 3$

then $6a - 3b$

$= 6 \times 2 - 3 \times 3$

$= 12 - 9 = 3$ [(b) ans.]

11. $p = 1, q = 2, r = 3$

$= p^2 + q^2 + r^2$

$= (1)^2 + (2)^2 + (3)^2$

$= 1 + 4 + 9 = 14$ [(c) ans.]

WORKSHEET

1. Each runner runs = 1525 m

45 participants run = $1525 \times 45 = 68625$ m

1000 m = 1 km

68625 m = $\frac{1}{1000} \times 68625$

= 68.625 km

2. 100, 99 consecutive numbers

3. $10 \times 10 + [400 \div \{100 - (50 - \overline{3 \times 10})\}]$

$= 10 \times 10 + [400 \div \{100 - (50 - 30)\}]$

$= 10 \times 10 + [400 \div \{100 - 20\}]$

$= 10 \times 10 + [400 \div 80]$

$= 10 \times 10 + 5$

$= 100 + 5 = 105$

4. First we find the sum of the digit of number 4259 * 48

$= 4 + 2 + 5 + 9 + * + 4 + 8 = 32$

We add 4 to 32 to make 36 which is divisible by 9, to make the number divisible by 9 we add 4 to the number

The number will be = 4259448

5.

2	72, 108, 132
2	36, 54, 66
2	18, 27, 33
3	9, 27, 33
3	3, 9, 11
3	1, 3, 11
11	1, 1, 11
	1, 1, 1

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

= 2376 seconds

$\because$ 60 seconds = 1 minute

2376 seconds = $\frac{1}{60} \times 2376$

39 minute, 36 seconds past 7 am

6. (Hint) 40 – (– 31) = 71 m

7. 858

8. In a school, there are 40 sections and in each section, there are 35 students.

Total student = $40 \times 35 = 1400$

Each student pays = ₹ 950

Then 1400 students will pay = 1400×950

= 1330000

9. $\frac{1}{4} + \frac{3}{8} = \frac{2+3}{8} = \frac{5}{8} l$

10. $1\frac{5}{6}$ kg

CHAPTER - 9

1. $12 + 33 = 21 + x$

(Subtract 21 from both sides)

$= 12 + 33 - 21 = -21 + 21 + x$

$24 = x$

2. $3 \times 8 = 6 \times m$

$24 = 6 \times m$

Now, substituting 1, 2, 3, 4 ... at the place of m

$6 \times m = 24$

$m = 1$ $6 \times 1 = 24$ (wrong)

$m = 2$ $6 \times 2 = 24$ (wrong)

$m = 3$ $6 \times 3 = 24$ (wrong)

$m = 4$ $6 \times 4 = 24$ (correct)

3. Let's take the number be = x

According to the question

$= 5 \times x - x = 68$

$= 5x - x = 68$

$= 4x = 68$

$x = \frac{68}{4} = 17$ (divide by 4 to both sides)

4. Let's take the number be = x

Now according to the question

$= (42 + x = 64 + 3x)$

$= 142 + x - 3x = 64$

(Subtracting $3x$ from both sides)

$= 142 - 2x = 64$

(Subtracting 64 from both sides)

$= 142 - 64 - 2x = 0$

$= 78 - 2x = 0$

(Subtracting 78 from both sides)

$= 78 - 78 - 2x = -78$

$= -2x = -78$

(Divide by 2 on both sides)

$-x = \frac{-78}{2} = -39$

$x = 39$ (By can celling (–) to (–))

5. $2 + 14x + 30$

(Subtracting 2 on both side)

$= -2 + 2 + 14x = 30 - 2$

$14x = 28$ (By dividing 14 to both side)

$= \frac{14x}{14} = \frac{28}{14}$

$= x = 2$

6. $\frac{3}{5} = \frac{6}{\times}$ $\rightarrow$ Perform cross multiplication

$3 \times x = 6 \times 5$

$3x = 30$

$x = \frac{30}{3} = 10$

7. $x = 26$

8. If we put $x = 4$

$= 2 \times 4 - 3 = 5$

$= 8 - 3 = 5$

$= 5 = 5$ Answer is correct

10. Ramu works = 8 hours
He ploughs = 6 hours
Suppose → irrigates = x hours
Then the equation will be = $6 + x = 8$

11. Suppose there were × balls before adding
Now the expression will be made = $12 + x = 36$

12. (Hint)

(a) $\frac{x}{8} = 10,\ x = 80$

(b) $x - 8 = 64,\ x = 72$

(c) Let's take Ramya's age be = x
then Tanya's age would be $x + 4$
according to the question
Sum of their ages = $x + x + 4 = 50$
(By subtracting from both sides)
(Dividing by 2 to both sides)
$= 2x + 4 = 50$
$= 2x + 4 - 4 = 50 - 4$
$= 2x = 46$
$= x = 23$
Ramya's age = 23
Tanya's age = $23 + 4 = 27$

(d) $x + 11 = -5$
[–11 on both sides]
$= x + 11 - 11 = -5 - 11$
$= x = -16$

SET - 2

1. (a) $z + 4 = 7$
on putting 1, 2, 3, 4 ... the place of z

$z = 1$	$= 1 + 4 = 7$	wrong
$z = 2$	$= 2 + 4 = 7$	wrong
$z = 3$	$= 3 + 4 = 7$	correct

(b)

$y = 1$	$= 3 \times 1 = 15$	wrong
$y = 2$	$= 3 \times 2 = 15$	wrong
$y = 3$	$= 3 \times 3 = 15$	wrong
$y = 4$	$= 3 \times 4 = 15$	wrong
$y = 5$	$= 3 \times 5 = 15$	correct

2. (a) 10

(b) $5x + 3 = 17 - 2x$
(adding $2x$ on both sides)
$= 5x + 3 + 2x = 17 - 2x + 2x$
$= 7x + 3 = 17$
$= 7x = 17 - 3$
$= 7x = 14$ (– 3 on both side)
$= x = 2$ (divide on both sides)

(c) 3 (d) 32

(e) $\frac{2x}{3} + 6 = 100$
$=$ (– 6 on both side)
$= \frac{2x}{3} = 100 - 6$
$= \frac{2x}{3} = 94$ (Multiply by 3 on sides)
$= 2x = 94 \times 3 \quad \Rightarrow 2x = 282$
(dividing by 2 on both sides)
$= x = \frac{282}{2} = 141$

(f) 42

4. (a) $2(x + 3) = 12;\ x = 3$
$2(3 + 3) = 12$
$6 + 6 = 12$
$12 = 12$ correct

(b) $\frac{4x}{7} = 24;\ x = 6$
$\frac{4 \times 6}{7} = 24$
$\frac{24}{7} = 24$(incorrect)

(c) Correct

(d) $2x - 14 = x - 30;\ x = 16$
$2 \times 16 - 14 = 16 - 30$
$32 - 14 = -14$ (incorrect)

5. $3x = 48 \Rightarrow x = 16$

6. Suppose the cost of 1 pen = x
Suppose the cost of 3 pens = $3x$
according to question
$= 3x = 84$ (divide by 3 on both sides)
$= \frac{3x}{3} = \frac{24}{3} = 8$
$= x = 28$

7. 33

8. Suppose 3 consecutive even integers are
$x,\ x + 2,\ x + 4$
according to the question

$= (x + x + 2 + x + 4) = 66$

$= 3x + 6 = 66$

(Subtracting 6 from sides)

$= 3x + 6 - 6 = 66 - 6$

$= 3x = 60$

(On dividing by 3 + 0 both sides)

$= \frac{3x}{3} = \frac{60}{3}$

$= x = 20$

CHAPTER - 10

SET - 1

1. (a) $\frac{7}{5} = \frac{7 \times 2}{5 \times 2} = \frac{14}{10}, \frac{7 \times 3}{5 \times 3} = \frac{21}{15}$

(b) $\frac{6}{5} = \frac{6 \times 2}{5 \times 2} = \frac{12}{10}, \frac{6 \times 3}{5 \times 3} = \frac{18}{15}$

2. (a) $\frac{15}{27} = \frac{5 \times 3}{9 \times 3} = \frac{5}{9}$ Yes

(b) $\frac{30}{35} = \frac{6 \times 5}{7 \times 5} = \frac{6}{7}$ Yes

3. $\frac{X}{30} = \frac{2}{5}, X = \frac{30 \times 2}{5} = 12$

4. (a) $\frac{2}{5} = \frac{4}{\square}, \frac{4 \times 5}{2} = 10$

(b) $\frac{3}{4} = \frac{\square}{24}, \frac{24 \times 3}{4} = 18$

(c) $\frac{1}{3} = \frac{3}{\square}, \frac{3 \times 3}{1} = 9$

(d) $\frac{3}{5} = \frac{6}{\square}, \frac{6 \times 5}{3} = 10$

5. (a) $\frac{9}{33} = \frac{3 \times 3}{3 \times 11} = \frac{3}{11}$

(b) $\frac{8}{28} = \frac{4 \times 2}{4 \times 7} = \frac{2}{7}$

6. Do yourself

7. Do yourself

8. (a) $\frac{4}{8} = \frac{4 \times 1}{4 \times 2} = \frac{1}{2}, \frac{3}{6} = \frac{3 \times 1}{3 \times 2} = \frac{1}{2}$ so $\frac{4}{8} = \frac{3}{6}$

(b) $\frac{5}{9}$ & $\frac{6}{10}, \frac{6}{10} = \frac{3 \times 2}{5 \times 2} = \frac{3}{5}$

L.C.M. of 9, 5 = 45

$\frac{5 \times 5}{9 \times 5} = \frac{25}{45}, \frac{3 \times 9}{5 \times 9} = \frac{18}{45}$ so $\frac{5}{9} > \frac{6}{10}$

9. (a) $\frac{₹\ 120}{₹\ 200} = \frac{3 \times 4 \times 10}{5 \times 4 \times 10} = \frac{3}{5}$

(b) $\frac{8 \text{ Hours}}{1 \text{ day}} = \frac{8 \text{ hours}}{24 \text{ hours}} = \frac{8}{24} = \frac{8 \times 1}{8 \times 3} = \frac{1}{3}$

10. Ratio in Anita's box $= \frac{15}{12} = \frac{3 \times 5}{3 \times 4} = \frac{5}{4}$

Ratio in Sunita's box $= \frac{16}{15}$

L.C.M. of 15 & 4 = 60

$\frac{5 \times 15}{4 \times 15} = \frac{75}{60}, \frac{16 \times 4}{15 \times 4} = \frac{64}{60}, \frac{5}{4} > \frac{15}{16}$

So Anita's box has higher ratio of pens and pencils then Sunita

11. $8x + 7x = 60$

$15x = 60$

$x = 4$

Numbers $8 \times 4 = 32, 7 \times 4 = 28$

12. $5x + 3x = 1200$

$8x = 1200$

$x = 150$

each son got $= 150 \times 5 = 750, 150 \times 3 = 450$

13. Let number of red apples = x

so number of green apples = $x + 35$

A.T.Q.

$\frac{x + 35}{x} = \frac{8}{3}$

$3x + 105 = 8x$

$5x = 105$

$x = 21$

So number of red apples = 21, no. of green apples = 21 + 35 = 56

SET - 2

1. $2x + 3x = 15$

$5x = 15$

$x = 3$

Raju has $3 \times 2 = 6$ toffees, Tanuj has $3 \times 3 = 9$ toffees.

2. $\frac{210 \text{ km}}{3 \text{ hours}} = \frac{x \text{ km}}{5 \text{ hours}}$

$x = \frac{5 \times 210}{3} = 350\,\text{km}$

3. Let it produce = x boxes

$\frac{72000 \text{ boxes}}{12 \text{ months}} = \frac{x \text{ boxes}}{10 \text{ months}}$

$x = \frac{72000 \times 10}{12} = 6000$ boxes

4. Sachin score = $\frac{56 \text{ runs}}{7 \text{ overs}} = 8$ runs/over

Naseem score = $\frac{42 \text{ runs}}{6 \text{ overs}} = 7$ runs/over

Sachin made more than Naseem runs per over

5. 1 mason can built = 32×9 days

No. of mason need to complete it in 24 days

$= \frac{32 \times 9}{24} = 12$

6. Rate of profit = $\frac{300}{1500} = \frac{1}{5}$

A.T.Q. profit on second suit = $\frac{1}{5} \times 2000 = 400$

7. $5x + 4x + 9x = 720$

$18x = 720$

$x = 40$

each friend receive $= 5 \times 40 = 200$ coins

$= 4 \times 40 = 160$ coins

$= 9 \times 40 = 360$ coins

MENTAL MATHEMATICS

6. $2 : 1 = 70 : x$

A.T.Q. $2x = 70$

So breath $x = 35$

7. $\frac{15}{80-15} = \frac{15}{65} = \frac{5 \times 3}{13 \times 5} = \frac{3}{13}$

8. $\frac{5}{9}$ & $\frac{10}{14}, \frac{10}{14} = \frac{2 \times 5}{2 \times 7} = \frac{5}{7}$

If numerator of fractions are equal, fraction which has less denominator is greater than others

$\frac{5}{7} = \frac{10}{14} > \frac{5}{9}$

9. $\frac{70 \text{ paise}}{7 \times 100 \text{ paise}} = \frac{1}{10} = 1 : 10$

MCQS

3. (a) $\frac{4}{60} = \frac{2 \times 2}{2 \times 30} = \frac{2}{30} = 2:30$

4. (a) $2x + 3x + 5x = 1200$

$10x = 1200$

$x = 120$

As share $2 \times 120 = 240$

5. (b) $\frac{X}{95} = \frac{51}{85}$

$X = \frac{51 \times 95}{85} = 57$

6. (c) $\frac{7}{a} = \frac{a}{63}$

$a \times a = 7 \times 63$

$a^2 = 441$

$a = 21$

7. (c) $\frac{129/3}{315/5} = \frac{43}{63}$

8. (c) $7x + 9x = 112$

$16x = 112$

$x = 7$, so smaller number $= 7 \times 7 = 49$

CHAPTER - 12
SET - I

1. $\angle C = 180 - (65 + 35) = 180° - 100° = 80°$

2. $4x + 3x + 5x = 180; 12x = 180;\ x = 15$

First angle $4 \times 15 = 60$, second angle $3 \times 15 = 45$, third angle $5 \times 15 = 75$

3. Let equal angles = x

$70 + x + x = 180$

$70 + 2x = 180$

$2x = 180 - 70$

$2x = 110$

$x = 55$

4. Let unknown angle = x

$36 + 90 + x = 180$

$126 + x = 180$

$x = 180 - 126 = 54$

6. (b) Let acute angle = x

$x + x + 90 = 180$

$2x = 180 - 90$

$2x = 90 \Rightarrow x = 45$

SET - 2

3. (a) It is obtuse triangle because it has 110° angle.

(b) It is acute triangle because all angles are acute.

(c) It is right triangle because it has 90° angle.

(d) It is obtuse triangle because it has 105° angle.

4. ΔADC is isosceles triangle and acute angled triangle.

ΔABE is scalene and obtuse angled triangle.

ΔACE is equilateral and acute angled triangle.

5. $2x + 1x + 1x = 180$

$4x = 180$

$x = \frac{180}{4} = 45$

first angle $= 2 \times 45 = 90$

second and third angle $= 1 \times 45 = 45$

6. Let the third angle $= x$

$55 + 15 + x = 180$

$70 + x = 180$

$x = 180 - 70 = 110$

It is obtuse angle triangle

7. Let third angle $= x$

$x + 50 + 90 = 180$

$x + 140 = 180$

$x = 180 - 140 = 40$

8. Let the equal angle $= x$

$x + x + 50 = 180$

$2x + 50 = 180$

$2x = 180 - 50$

$2x = 130$

$x = 65$

PART II
REVISION EXERCISE
SET - 1

6. Let the forth angle $= x$

$110 + 50 + 40 + x = 360$

$200 + x = 360$

$x = 360 - 200 = 160$

7. Opposite angles of rhombus are equal

So A.T.Q.

$x + x + 70 + 70 = 360$

$2x + 140 = 360$

$2x = 360 - 140$

$2x = 220$

$x = 110$

8. $1x + 4x + 1x + 4x = 360$

$10x = 360$

$x = 36$

so angles are $36 \times 1 = 36$

$36 \times 4 = 144$

CHAPTER - 15
SET - 1

1. (a) $50 + 50 + 50 + 50 + 50 + 50 = 300$ mm

(b) $2 + 2 + 1 + 4 + 1 + 2 + 2 + 8 = 22$ mm

2. Perimeter of rectangle $= 2(l + b)$

$= 2(10 + 2) = 24$ m

Perimeter of square $= 4 \times$ side

$4 \times 4 = 16$ m

Difference $= 24 - 16 = 8$ m

3. Area of shaded part $= l \times b = 8 \times 4 = 32\,m^2$

4. Length of picture $= 12 - (3 + 3) = 6$ cm

Breadth of picture $= 10 - (2 + 2) = 6$ cm

Area $= 6 \times 6 = 36\,cm^2$

5. Side of square $= \frac{28}{4} = 7$ cm

Side of equilateral triangle $= \frac{21}{3} = 7$ cm

Both sides are equal

6. (a) Perimeter of square $= 4 \times$ side

$= 4 \times 4 = 16$ cm

Perimeter of triangle $= 5 + 5 + 2 = 10$ cm

Perimeter of rectangle $= 2(l + b)$

$= 2(6 + 3) = 18$ cm

7. Length $= 18$ cm

A.T.Q. breadth $= \frac{18}{2} = 9$ cm

Area $= 18 \times 9 = 162\,m^2$

8. Side $\times$ Side $= 225$

$= 15 \times 15$

side $= 15$ cm

9. Perimeter = 250 meter, length = 75 meter
$250 = 2\ (75 + \text{breadth})$
$\frac{250}{2} = 75 + b$
$125 = 75 + b$
$b = 125 - 75 = 50$ meter
Area $= 50 \times 75 = 3750$ meter^2

10. Perimeter $= 2\ (l + b)$
$= 2\ (250 + 20) = 540$ meter
distance covered in two rounds $= 2 \times 540$
$= 1080$ meter

11. Side $= \frac{144}{4} = 36$ cm

12. $P = 2.25 + 0.756 + 11.129 = 14.135$ cm

13. Perimeter of Square $= 4 \times 12 = 48$ cm
Perimeter of Triangle $= 3 \times 10 = 30$ cm
Sum $= 48 + 30 = 78$ cm

14. $96 = 28 + 10 + 12 + 14 + AB$
$96 = 64 + AB$
$AB = 96 - 64 = 32$ cm

15. Side of square = diameter of circle $= 6 \times 2$
$= 12$ cm
So perimeter of square $= 4 \times 12 = 48$ cm

SET - 2

1. $P = 6 + 6 + 6 + 1 + 3 + 4 + 3 + 1 = 30$ cm

2. (a) Area $= 4 \times 1 + 3 \times 1 + 2 \times 1 + 1 \times 1$
$= 10$ cm^2

(b) Area $= 2.5 \times 5 + 1.5 \times 5 + 2.5 \times 5$
$= 362.5$ cm^2

3. Area of room $= 13.6 \times 6.4 = 87.04$ m^2
Area of tile $= \frac{80}{100} \times \frac{80}{100} = 0.64$ m^2
No. of tiles $= \frac{\text{Area of room}}{\text{Area of tile}} = \frac{87.04}{0.64} = 13.6$

5. Area of rectangle $= 120 \times 50 = 6000$ m^2
Area of square $= 75 \times 75 = 4025$ m^2
rectangle has more area then square

6. Area of room $= 10 \times 6 = 60$ m^2
Area required by each person = 1.2 sq.m
no. of people $= \frac{\text{Area of room}}{\text{Area required by each person}}$
$= \frac{60}{1.2} = 50$

7. Side $= \frac{576}{4} = 144$ m

8. Area of wall $= 16 \times 12 = 192$ m^2
Area of brick $= \frac{20}{100} \times \frac{8}{100} = 0.0160$ m^2
no. of bricks $= \frac{192}{0.0160} = 12{,}000$

9. $2\ (75 + \text{breadth}) = 270$
$75 + \text{breadth} = \frac{270}{2} = 135$
breath $= 135 - 75 = 60$
Area $= 75 \times 60 = 4500$ m^2

10. Let the side of square $= x$
so area of square $= x^2$
A.T.Q.
New side of square $= 2x$
so area of square $= 2x \times 2x = 4x^2$
ratio of areas $= \frac{x^2}{4x^2} = \frac{1}{4} = 1:4$

11. A.T.Q.
Length of new rectangle $= l$
breath of new rectangle $= 2b$
Area $= 2b \times l = 2lb$

12. Area of floor $= 25 \times 40 \times 2.5 = 2500$ m^2

MENTAL MATHEMATICS

5. Side $= \frac{78}{3} = 26$ cm

6. Side $= \frac{84}{4} = 21$ cm

MCQS

5. (a) Distance $= 3 \times$ perimeter of square
$= 3 \times 4 \times 70 = 840$ m

6. (c) Cost $= 20 \times$ perimeter of square
$= 20 \times 250 \times 4 = 20{,}000$

7. (b) Width $= \frac{300}{50} = 6$ m

8. (a) $2(5x + 4x) = 144$

$18x = 144$

$x = 8$

Length $= 5 \times 8 = 40$

9. (c) ratio of side = ratio of perimeter

$= \sqrt{\text{ratio of areas}} = \sqrt{225 : 256} = 15:16$

10. (b) No. of tiles $= \dfrac{4 \times 3}{\frac{25}{100} \times \frac{20}{100}} = 240$

11. (c) Length $= \dfrac{650}{13} = 50$ cm

Perimeter $= 2(50 + 13) = 126$ cm

14. (b) Area of room $= \dfrac{510}{8.50} = 60$

breadth $= \dfrac{60}{8} = 7.5$

CHAPTER - 16
SET - I

4.	Subject	Telly mark	Frequency
	Science	𝍸	5
	English	||||	4
	Math	𝍸 |||	8
	Hindi	𝍸	5
	Social Science	|||	3

WORKSHEET

1. (a) Distance

$= 417 + 341 + 216 + 814 + 483 + 255$

$= 2526$ km

(b) Distance $= 216 + 814 + 483 = 1513$ km

(c) Time $= \dfrac{\text{distance}}{\text{speed}}$

$= \dfrac{2526}{63} = 40$ hours

2. Do yourself

3. $100 + [10 + 15 \text{ of } 3 - (20 + 30 - 45 \div 5)]$

$= 100 + [10 + 15 \text{ of } 3 - (20 + 30 - 9)]$

$= 100 + [10 + 15 \text{ of } 3 - 41]$

$= 100 + [10 + 45 - 41]$

$= 100 + [10 + 4]$

$= 100 + 14 = 114$

4. Friday

5. Ratio of students of school A $= \dfrac{250}{650}$

$= \dfrac{5 \times 5 \times 10}{13 \times 5 \times 10} = \dfrac{5}{13}$

Ratio of student of school B $= \dfrac{325}{800}$

$= \dfrac{25 \times 13}{8 \times 25 \times 4} = \dfrac{13}{32}$

L.C.M. of 13 & 32 $= 416$

$\dfrac{5 \times 32}{13 \times 32} = \dfrac{160}{416}, \dfrac{13 \times 13}{32 \times 13} = \dfrac{169}{416}$

In school B more students are selected.

6. Left tape $= 7.87 - 2.58 = 5.29$

It is not sufficient to tie a clothes line between two hooks which are 6 m apart

required tape $= 6 - 5.29 = 0.71$ meter

7. Distance coved in one move $= \dfrac{1}{4} - \dfrac{1}{8} = \dfrac{1}{8}$

so total number of move $= 8 - 1 = 7$

8. Let the no. of years $= x$

A.T.Q.

$\dfrac{59 - x}{11 - x} = \dfrac{7}{1}$

$59 - x = 77 - 7x$

$7x - x = 77 - 59$

$6x = 18$

$x = 3$ years

9. A.T.Q.

$\dfrac{3000}{210} = \dfrac{4500}{\text{Interest}}$

Interest $= \dfrac{4500 \times 210}{3000} = 315$

$\dfrac{3000}{210} = \dfrac{\text{Principal}}{700}$

Principal $= \dfrac{3000 \times 700}{210} = 10{,}000$