MathsTime

A Textbook **of Mathematics**

5

Unit-I : Number and Fundamental Operations

1.   Large Numbers

Exercise 1.1

  1. 64,03,115   **2.** 10,01,100   **3.** 91,23,312

  4. 2,415,396   **5.** 1,964,732   **6.** 4,053,612

  7. 3; 10; 200; 6,000; 50,000; 3,00,000; 40,00,000

  8. 7; 50; 100; 0; 20,000; 7,00,000; 90,00,000

  9. 5; 0; 800; 9,000; 0; 9,00,000; 60,00,000

10. 3; 40; 200; 6,000; 50,000; 900,000; 4,000,000;

11. 1; 50; 700; 8,000; 0; 200,000; 9,000,000

12. 0; 70; 400; 1,000; 40,000; 500,000; 3,000,000

13. Forty seven lakh three thousand nine hundred fifty five

14. Thirty four lakh fifty six thousand seven hundred eighty nine

15. Eighty three lakh twenty four thousand nine hundred sixty seven

16. Six million twenty nine thousand three hundred forty seven

17. Eight million four hundred ninety thousand one hundred sixty three

18. Two million seven hundred forty eight thousand nine hundred fifty five

19. 18,46,830   **20.** 35,90,567   **21.** 64,08,009

22. 70,80,420   **23.** 84,07,050

24. 10,00,000 + 9,00,000 + 60,000 + 4,000 + 700 + 30 + 2

25. 10,00,000 + 9,00,000 + 60,000 + 6,000 + 300 + 20 + 7

26. 20,00,000 + 4,00,000 + 20,000 + 5,000 + 30 + 5

27. 25,58,037   **28.** 70,36,581   **29.** 8,503,740

30. 4,845,858

Exercise 1.2

  1. 87,65,43,219   **2.** 3,62,41,230   **3.** 62,17,58,901

  4. 2; 10; 600; 3,000; 50,000; 0; 40,00,000; 3,00,00,000

  5. 1; 30; 800; 5,000; 80,000; 7,00,000; 30,00,000; 4,00,00,000; 50,00,00,000

  6. 2; 30; 900; 1000; 50,000; 4,00,000; 20,00,000; 6,00,00,000; 90,00,00,000; 100,00,00,000

  7. 2,00,00,000 + 30,00,000 + 7,00,000 + 60,000 + 4,000 + 1 0 0 + 9 0 + 2

1

8. 80,00,00,000 + 7,00,00,000 + 30,00,000 + 4,00,000 + 30,000 + 2,000 + 700 + 60 + 6

9. 600,00,00,000 + 40,00,00,000 + 2,00,00,000 + 40,00,000 + 2,00,000 + 50,000 + 0 + 300 + 50 + 7

10. Five crore nineteen lakh seventy six thousand three hundred forty two

11. Ninety two crore eight lakh seventy five thousand one hundred ninety five

12. Two hundred forty four crore five lakh forty two thousand four hundred fifty one

13. 5,67,51,072 **14.** 14,00,80,504 **15.** 110,07,05,003

16. 300,42,57,020

17. 1,00,00,000 one crore; 9,99,99,999 nine crore ninety nine lakh ninety nine thousand, nine hundred ninety nine

18. Ninety nine crore sixty six lakh eighty eight thousand three hundred twenty six

19. 4,04,04,404

Exercise 1.3

1. 96543300 **2.** 787879000 **3.** 1002010000

4. 320300399 **5.** 256102999 **6.** 1723599999

7. > **8.** < **9.** <

10. >

11. 2,06,48,932; 2,06,84,732; 2,06,88,327

12. 20,40,09,088; 24,10,88,035; 70,60,50,403

13. 7,00,15,033; 7,00,51,033 7,30,48,950

14. 76,67,76,677; 67,76,67,766; 67,67,76,767

15. 43, 12, 87, 877; 34, 12, 87, 877; 33, 12, 87, 877;

16. 19,02,10,388; 19,02,05,387; 19,02,03,378

18. 1,00,00,234; 4,32,10,000

Exercise 1.4

1. Fifteen million nine hundred seventy six thousand three hundred forty two

2. Five hundred ninety one million eight hundred seventy five thousand nine hundred twenty

3. Five billion four hundred two million four hundred forty two thousand four hundred fifty nine.

4. 96,654,502 **5.** 400,322,334 **6.** 85,432,003,251

7. 50,000,000 **8.** 5,000,000 **9.** 5,000,000,000

10. 19,643,300 **11.** 266,399,900 **12.** 3,102,000,000

13. 800,100,899   **14.** 20,851,999   **15.** 32,099,999
16. >   **17.** <   **18.** >
19. <
20. 35,004,632; 35,011, 184; 53, 104, 236
21. 86, 340, 295; 86, 430, 295; 86, 432, 095
22. 700,010,533; 700,015,033; 700,051,033
23. 148,204,312   **24.** 1,694,372,325   **25.** 94, 184, 106, 027
26. (i) 1 (ii) 1   **27.** (i) 100 (ii) 100
28. Nine hundred ninety six million four hundred eight thousand six hundred thirty two
29. One hundred forty nine million

Exercise 1.5

1. 5310	**2.** 8770	**3.** 8010
4. 1240	**5.** 10.430	**6.** 83,490
7. 1,00,990	**8.** 5280	**9.** 1100
10. 8200	**11.** 4600	**12.** 1300
13. 23,800	**14.** 4,00,100	**15.** 83,100
16. 5500	**17.** 4000	**18.** 9000
19. 29,000	**20.** 38,000	**21.** 66,000
22. 5,13,000	**23.** 7,38,000	**24.** 8,44,000

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2.   Roman Numerals

Exercise 2.1

1. XXV	**2.** XXXIX	**3.** LXXXIX
4. XCV	**5.** CXLV	**6.** CCXII
7. CCCXLVIII	**8.** CDXCIII	**9.** CDLXXXIX
10. DV	**11.** DCCCXXXIX	**12.** CMXCIX
13. MX	**14.** MCC	**15.** MCMXIV
16. MDXC	**17.** MDCCCIX	**18.** MMMCXXXVIII
19. MMCDLXXXV	**20.** IVXLVI	**21.** 46
22. 140	**23.** 89	**24.** 98
25. 340	**26.** 533	**27.** 555
28. 490	**29.** 790	**30.** 908
31. 594	**32.** 1110	**33.** 640
34. 1226	**35.** 1720	**36.** 2500
37. X	**38.** XV	**39.** XL

40. C   **41.** DC   **42.** MCD

43. XL   **44.** XCIX   **45.** CDL

46. CDXC

47. CXL, CXLI, CXLII, CXLIII, CXLIV, CXLV, CXLVI , CXLVII, CXLVIII, CXLIX, CL

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3.   **Fundamental Operations**

Exercise 3.1

1. 3,51,45,453   **2.** 3,85,89,864   **3.** 59,65,36,297

4. 69,83,327   **5.** 2,34,41,617   **6.** 11,26,17,498

7. 26,75,56,396

8.
```
    5 6 8 4 4
 +  6 7 3 1 7
 ────────────
  1 2 4 1 6 1
```

9.
```
    9 3 4 2 1
 +  2 1 1 4 3
 ────────────
  1 1 4 5 6 4
```

10.
```
    4 5 2 9 1
 +  2 4 2 5 2
 ────────────
  6 9 5 4 3
```

11.
```
    2 1 7 3 0
 −  1 9 2 4 1
 ────────────
      2 4 8 9
```

12.
```
    3 4 2 1 5
 −  2 0 6 4 2
 ────────────
  1 3 5 7 3
```

13.
```
    9 8 4 5 0
 −  3 2 6 1 4
 ────────────
  6 5 8 3 6
```

14. Number of men in country = 21,45,86,513

Number of women in country = 17,18,53,315

Number of children in country = 12,81,53,682

Total population of the country

     = 21,45,86,513 + 17,18,53,315 + 12,81,53,682

     = **51,45,93,510**

Total populaton of the country is 51,45,93,510.

15. The greatest eight-digit number = 9,99,99,999

The smallest eight-digit number = 1,00,00,000

Sum of the greatest and smallest 8-digit number

     = 9,99,99,999

     + 1,00,00,000

     10,99,99,999

Thus, the sum of the greatest and the smallest eight-digit numbers in 10,99,99,999.

16. Difference of two numbers = 12,45,754

Smaller number = 11,39,658

Large number = 12,45,754 + 11,39,658 = **23,85,412**

Thus, the larges number is 23,85,412.

Exercise 3.2

1. 71,41,724   2. 81,19,196   3. 7,74,30,749
4. 49,97,989   5. 8,54,548   6. 1,81,03,211
7. 5,37,86,606
8. Starting from ones first line 6; second line 7; 2; third line 8; 1;1
9. Starting from ones first line 0; 0; second line 0; 8; 4; third line 6; 4
10. Total population of a country = 47,45,68,931
    Number of men = 17,35,98,124
    Number of women = 18,99,99,856
    Number of children
    $$= 47,45,68,931 - (17,35,98,124 + 18,99,99,856)$$
    $$= 47,45,68,931 - 36,35,97,980$$
    $$= \textbf{11,09,70,951}$$
    Thus, number of children in the country is 11,09,70,951.
11. Sum of two numbers = 5,12,10,913
    One of the numbers = 2,53,61,789
    Other numbers = 5,12,10,913 − 2,53,61,789
    $$= \textbf{2,58,49,124}$$
    Thus, the other number is 2,58,49,124.
12. Cloth produced by mill in 2008 = 2,75,45,942 m
    Cloth produced by mill in 2009 = 3,54,79,825 m
    Clearly mill produced more cloth in 2009
    Cloth produced more in 2009 than in 2008
    $$= 3,54,79,825 - 2,75,45,942$$
    $$= \textbf{79,33,883 m}$$
    Thus, mill produced 79,33,883 m more cloth in 2009.
13. Bulbs produced by factory in a certain year = 3,59,67,851
    Bulbs produced in next year = 4,01,23,425
    Increase in the production = 4,01,23,425 − 3,59,67,851
    $$= \textbf{41,55,574}$$
    Increase in the production of bulbs is 41,55,574.

Exercise 3.3

1. 1,20,000   2. 13,80,000   3. 1,50,00,000
4. 4,09,02,000   5. 13,91,600   6. 4,35,80,000
7. 17,93,785   8. 8,53,596   9. 89,42,787
10. 2,91,42,495   11. 3,67,07,856   12. 77,24,860

13. Each day production = 7654 toys

Number of days left in the year after 78 holidays

$$= 365 - 78 = 287$$

Total production in whole year = 7654×287

$$= \textbf{2196698 toys}$$

Thus, 2196698 toys will be produced in a year.

14. Number of total employees in Coca Cola drinks factory = 1034

Salary of each person = ₹ 4575

Total money that factory expends per month

$$= 1034 \times 4575 = ₹ \textbf{4730550}$$

Thus, total money per month the factory expends on salary is ₹ 4730550.

15. Total number of students in school = 2385

Yearly payment from each student = ₹ 5172

Total payment from all students = 2385×5172

$$= ₹ \textbf{12335220}$$

Thus, total money collected is ₹ 12335220 in a year.

Exercise 3.4

1. 198 R 3	**2.** 120	**3.** 6
4. 200	**5.** 850 R 674	**6.** 36 R 785
7. 11 R 4682	**8.** 871 R 6485	**9.** 18 R 6499
10. 157 R 5	**11.** 1151 R 55	**12.** 1258 R 274
13. 1526 R 149	**14.** 21246 R 357	**15.** 6466 R 669

16. Total production of screws = 16,56,000

Number of screws packed in a carton = 576

Number of cartons required for all screws = $16,56,000 \div 576$

$$= \textbf{2,875}$$

```
              2875
        576) 1656000
             1152↓ |
             5040  |
             4608↓ |
              4320 |
              4032↓
               2880
               2880
                  0
```

Thus, total 2,875 cartons are required.

17. Total number of ball-point pens = 36,98,640

Number of pens in a packet = 144

Number of packets made = 36,98,640 ÷ 144 = **25,685**

$$
\begin{array}{r}
25685 \\
576)\overline{3698640} \\
288\!\downarrow\;\;\;\;\; \\
\overline{818}\;\;\;\;\; \\
720\!\downarrow\;\;\; \\
\overline{986}\;\;\; \\
864\!\downarrow\; \\
\overline{1224}\; \\
1152\!\downarrow \\
\overline{720} \\
720 \\
\overline{0}
\end{array}
$$

Thus, total 25,685 packets are made.

18. Cost of 378 bicycles = ₹ 4,70,988

Cost of each bicycle = 4,70,988 ÷ 378 = ₹ **1246**

$$
\begin{array}{r}
1246 \\
576)\overline{470988} \\
378\!\downarrow\;\;\;\;\; \\
\overline{929}\;\;\;\;\; \\
756\!\downarrow\;\;\; \\
\overline{1738}\;\;\; \\
1512\!\downarrow \\
\overline{2268} \\
2268 \\
\overline{0}
\end{array}
$$

Cost of each bicycle is ₹ 1246.

19. Annual sale of a diary = 23,40,321 L

Total working days of sale = 365 − 6 = 359 days

Daily sale of dairy = 2340321 ÷ 359 = **6,519 L**

$$
\begin{array}{r}
6519 \\
576)\overline{2340321} \\
2154\!\downarrow\;\;\;\; \\
\overline{1863}\;\;\;\; \\
1795\!\downarrow\;\; \\
\overline{682}\;\; \\
359\!\downarrow \\
\overline{3231} \\
3231 \\
\overline{0}
\end{array}
$$

Thus, per day sale of dairy was 6519 L of milk.

1. 8	**2.** 26	**3.** 4	**4.** 20	**5.** 14
6. 99	**7.** 12	**8.** 0	**9.** 5034	

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Unit-II : Multiples and Factors

4.   Divisibility and Factorization

Exercise 4.1

2. no	**3.** yes	**4.** yes	**5.** no	**6.** yes
7. yes	**8.** yes	**9.** no	**10.** yes	**11.** no
12. yes	**13.** no	**14.** no	**15.** yes	**16.** no
17. yes	**18.** yes	**19.** no	**20.** yes	**21.** yes
22. no	**23.** yes	**24.** yes	**25.** yes	

Exercise 4.2

1. yes	**2.** yes	**3.** yes	**4.** no	**5.** no
6. yes	**7.** yes	**8.** no	**9.** yes	**10.** yes
11. yes	**12.** no	**13.** yes	**14.** no	**15.** yes
16. yes	**17.** no	**18.** yes	**19.** yes	**20.** yes

Exercise 4.3

1. yes	**2.** no	**3.** no	**4.** yes	**5.** no
6. no	**7.** no	**8.** yes	**9.** yes	**10.** no
11. yes	**12.** yes	**13.** yes	**14.** yes	**15.** yes
16. yes	**17.** no	**18.** yes	**19.** yes	**20.** no
21. no	**22.** yes	**23.** no	**24.** yes	**25.** yes
26. yes	**27.** no	**28.** yes	**29.** yes	**30.** yes
31. no	**32.** yes	**33.** yes	**34.** yes	**35.** no
36. no				

Exercise 4.4

1. no	**2.** yes	**3.** yes	**4.** yes	**5.** no
6. yes	**7.** yes	**8.** no	**9.** 6	**10.** 7
11. 7	**12.** 9	**13.** 4	**14.** 6	**15.** 2
16. 1	**17.** no	**18.** yes	**19.** yes	**20.** no
21. no	**22.** yes	**23.** yes	**24.** yes	

1. $2 \times 2 \times 2 \times 2 \times 2 \times 2$ 2. $2 \times 2 \times 3 \times 3$
3. $2 \times 2 \times 3 \times 7$ 4. $2 \times 2 \times 2 \times 2 \times 2 \times 3$
5. $2 \times 2 \times 3 \times 3 \times 3$ 6. $2 \times 3 \times 3 \times 7$
7. $2 \times 2 \times 2 \times 2 \times 3 \times 3$ 8. $2 \times 2 \times 2 \times 3 \times 3 \times 3$
9. $2 \times 2 \times 3 \times 3 \times 5$ 10. $3 \times 3 \times 3 \times 3 \times 3$
11. $3 \times 5 \times 5 \times 5$ 12. $7 \times 7 \times 7$
13. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
14. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$
15. $2 \times 2 \times 13 \times 13$ 16. $11 \times 11 \times 11$
17. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$ 18. $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$
19. $5 \times 5 \times 7 \times 7$ 20. $2 \times 2 \times 3 \times 3 \times 3 \times 3$

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5.   Highest Common Factor (HCF)

Exercise 5.1

1. 12	2. 16	3. 8	4. 9	5. 35
6. 7	7. 36	8. 108	9. 26	10. 4
11. 45	12. 128	13. 9	14. 7	15. 14
16. 9	17. 72	18. 3	19. 18	20. 9
21. 3	22. 4	23. 53	24. 46	25. 18
26. 38	27. 63	28. 65	29. 56	30. 36

Exercise 5.2

1. Length of room = 5 m 40 cm = $5 \times 100 + 40 = 540$ cm
   Breadth of room = 4 m 20 cm = $4 \times 100 + 20 = 420$ cm
   Height of room = 3 m = $3 \times 100 = 300$ cm
   To find the length of the longest tape, we take HCF of 540, 420 and 300.

   $$
   \begin{array}{r|rrr}
   2 & 540, & 420, & 300 \\ \hline
   2 & 270, & 210, & 150 \\ \hline
   3 & 135, & 105, & 75 \\ \hline
   5 & 45, & 35, & 25 \\ \hline
    & 9, & 7, & 5
   \end{array}
   $$

   HCF of 540, 420 and 300 = $2 \times 2 \times 3 \times 5 =$ **60 cm**.
   Thus, the length of the longest tape to measure is 60 cm.

2. To find the longest measure of container, we take HCF of 16, 32 and 40.

```
2 | 16,  32,  40
2 |  8,  16,  20
2 |  4,   8,  10
  |  2,   4,   5
```

HCF of 16, 32 and 40 $= 2 \times 2 \times 2 =$ **8 L**

Thus, the longest measure of the container is 8 L.

3. To find the greatest number of marbles in each packet, we take HCF of 308 and 112.

```
2 | 308,  112
2 | 154,   56
7 |  77,   28
  |  11,    4
```

HCF of 308 and 112 $= 2 \times 2 \times 7 =$ **28**

Thus, the greatest number of marbles in each packet is 28.

4. To find the greatest number of divide 72, 96 and 136 exactly, we take HCF of 72, 96 and 136.

```
2 | 72,  96,  136
2 | 36,  48,   68
2 | 18,  24,   34
  |  9,  12,   17
```

HCF of 72, 96 and 136 $= 2 \times 2 \times 2 =$ **8**

5. The greatest weight of heap is the HCF of 1050 kg and 825 kg.

```
3 | 1050, 825
5 |  350, 275
5 |   70,  55
  |   14,  11
```

HCF of 1050 and 825 $= 3 \times 5 \times 5 =$ **75 kg**

Thus, weight of the greatest heap is 75 kg.

6. To find the required number, we take HCF of $(208 - 8)$ and $(358 - 8)$ *i.e.,* 200 and 350.

= HCF of 200 and 350

$$\begin{array}{r|rr} 2 & 200, & 350 \\ \hline 5 & 100, & 175 \\ \hline 5 & 20, & 35 \\ \hline & 4, & 7 \end{array}$$

HCF of 200 and 350 $= 2 \times 5 \times 5 = \mathbf{50}$

7. Length of a room $= 6$ m 40 cm

$$= 6 \times 100 \, \text{cm} + 40 \, \text{cm} = 640 \, \text{cm}$$

Breadth of room $= 4$ m 80 cm

$$= 4 \times 100 \, \text{cm} + 80 \, \text{cm} = 480 \, \text{cm}$$

To find the greatest length of square tile to be fitted on floor, we take HCF of 640 and 480.

$$\begin{array}{r|rr} 2 & 640, & 480 \\ \hline 2 & 320, & 240 \\ \hline 2 & 160, & 120 \\ \hline 2 & 80, & 60 \\ \hline 2 & 40, & 30 \\ \hline 5 & 20, & 15 \\ \hline & 4, & 3 \end{array}$$

HCF of 640 and 480 $= 2 \times 2 \times 2 \times 2 \times 2 \times 5 = 160 \, \text{cm}$
$$= \mathbf{1\,m\ 60\,cm}$$

Thus, the greatest length of the square tile will be 1 m 60 cm.

8. Length of wires $= 20$ m 57 cm and 22 m 99 cm

$$= 20 \times 100 + 57 \text{ and } 22 \times 100 + 99$$
$$= 2057 \, \text{cm and } 2299 \, \text{cm}$$

To find the maximum length that can be cut, we take HCF of 2057 and 2299.

$$\begin{array}{r|rr} 11 & 2057, & 2299 \\ \hline 11 & 187, & 209 \\ \hline & 17, & 19 \end{array}$$

HCF of 2057 and 2299 $= 11 \times 11 = 121 = \mathbf{1\,m\ 21\,cm}$

Thus, the maximum length of wire which can be cut is 1 m 21 cm.

9. To find the measure of single container of maximum capacity, we take HCF of 136, 170 and 119.

$$\begin{array}{r|rrr} 17 & 136, & 170, & 119 \\ \hline & 8, & 10, & 7 \end{array}$$

HCF of 136, 170 and 119 = 17

Thus, capacity of the greatest container is 17 L.

10. To find the required number, we take HCF of 396 and (619 – 7), i.e., 396 and 612.

$$
\begin{array}{r|l}
2 & 396,\ 612 \\ \hline
2 & 198,\ 306 \\ \hline
3 & 99,\ 153 \\ \hline
3 & 33,\ \ 51 \\ \hline
 & 11,\ \ 17
\end{array}
$$

HCF of 396 and 612 = $2 \times 2 \times 3 \times 3$ = **36**

Thus, the required number is 36.

11. To find the required number, we take HCF of (227 – 7) and (272 – 8), *i.e.,* 220 and 264.

$$
\begin{array}{r|l}
2 & 220,\ 264 \\ \hline
2 & 110,\ 132 \\ \hline
11 & 55,\ \ 66 \\ \hline
 & 5,\ \ \ 6
\end{array}
$$

HCF of 220 and 264 = $2 \times 2 \times 11$ = **44**

Thus, the required number is 44.

12. To find the greatest length of the tape, we take HCF of 456 m, 612 m and 2106 m.

$$
\begin{array}{r|l}
2 & 456,\ 612,\ 2106 \\ \hline
3 & 228,\ 306,\ 1053 \\ \hline
 & 76,\ 102,\ \ 351
\end{array}
$$

HCF of 456, 612 and 2106 = 2×3 = **6 m**

Thus, the greatest length of the tape is 6 m.

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6. Lowest Common Multiple (LCM)

Exercise 6.1

1. 48	**2.** 36	**3.** 108	**4.** 180	**5.** 120
6. 96	**7.** 490	**8.** 120	**9.** 168	**10.** 90
11. 150	**12.** 1320	**13.** 600	**14.** 480	**15.** 260
16. 288	**17.** 210	**18.** 192	**19.** 864	**20.** 330

21. 750   **22.** 9450   **23.** 8640   **24.** 5100   **25.** 16; 320

26. 38; 228   **27.** 51; 1020

28. LCM of two numbers = 784

$$\text{Their HCF} = 7$$

One of the numbers = 49

Now, product of two numbers = LCM × HCF

$$49 \times \text{Other number} = 784 \times 7$$

$$\text{Other number} = \frac{784 \times 7}{49}$$

Other number = **112**

29. Product of two numbers = 320

LCM of two numbers = 80

Now, product of two numbers = LCM × HCF

$$320 = 80 \times \text{HCF}$$

$$\text{HCF} = \frac{320}{80}$$

$$\text{HCF} = \mathbf{4}$$

Exercise 6.2

1. To find the time after which bell will ring again, we take LCM of 5, 10, 12 and 15.

2	5, 10, 12, 15
2	5, 5, 6, 15
3	5, 5, 3, 15
5	5, 5, 1, 5
	1, 1, 1, 1

LCM of 5, 10, 12 and 15 = $2 \times 2 \times 3 \times 5 = 60 \sec = $ **1 min**

The bells will ring again after 1 minute.

2. To find the time at which clocks will chime together, we take LCM of 10, 15 and 20 minutes.

2	10, 15, 20
2	5, 15, 10
3	5, 15, 5
5	5, 5, 5
	1, 1, 1

LCM of 10, 15 and 20 = $2 \times 2 \times 3 \times 5 = 60 \min = $ **1 hour**

The bells will chime together afer 1 hour, *i.e.,* at 1 noon.

3. To find the smallest number of students, we take LCM of 5, 7 and 8.

$$
\begin{array}{c|ccc}
2 & 5, & 7, & 8 \\
\hline
2 & 5, & 7, & 4 \\
\hline
2 & 5, & 7, & 2 \\
\hline
5 & 5, & 7, & 1 \\
\hline
7 & 1, & 7, & 1 \\
\hline
 & 1, & 1, & 1
\end{array}
$$

LCM of 5, 7 and $8 = 2 \times 2 \times 2 \times 5 \times 7 = 280$

Thus, the required number of students is $280 + 2 = $ **282.**

4. To find the smallest number of plants in the garden, we take LCM of 18, 24 and 32.

$$
\begin{array}{c|ccc}
2 & 18, & 24, & 32 \\
\hline
2 & 9, & 12, & 16 \\
\hline
2 & 9, & 6, & 8 \\
\hline
2 & 9, & 3, & 4 \\
\hline
2 & 9, & 3, & 2 \\
\hline
3 & 9, & 3, & 1 \\
\hline
3 & 3, & 1, & 1 \\
\hline
 & 1, & 1, & 1
\end{array}
$$

LCM of 18, 24 and $32 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 288$

Thus, the required number of plants $= 288 + 4 = $ **292**

5. To find the smallest number, we take LCM of 36, 54 and 72.

$$
\begin{array}{c|ccc}
2 & 36, & 54, & 72 \\
\hline
2 & 18, & 27, & 36 \\
\hline
2 & 9, & 27, & 18 \\
\hline
3 & 9, & 27, & 9 \\
\hline
3 & 3, & 9, & 3 \\
\hline
3 & 1, & 3, & 1 \\
\hline
 & 1, & 1, & 1
\end{array}
$$

LCM of 36, 54 and $72 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 = $ **216**

Thus, 216 is the smallest number.

6. To find the smallest number of apples, we take LCM of 12, 18 and 30.

2	12, 18, 30
2	6, 9, 15
3	3, 9, 15
3	1, 3, 5
5	1, 1, 5
	1, 1, 1

LCM of 12, 18 and 30 $= 2 \times 2 \times 3 \times 3 \times 5 = $ **180**

Thus, the smallest number of apples is 180.

7. To find the smallest number of students, we take LCM of 10, 15 and 16.

2	10, 15, 16
2	5, 15, 8
2	5, 15, 4
2	5, 15, 2
3	5, 15, 1
5	5, 5, 1
	1, 1, 1

LCM of 10, 15 and 16 $= 2 \times 2 \times 2 \times 2 \times 3 \times 5 = $ **240**

Thus, the smallest number of students is 240.

8. To find the minimum distance after which they step together, we take LCM of 50, 60 and 55.

2	50, 60, 55
2	25, 30, 55
3	25, 15, 55
5	25, 5, 55
5	5, 1, 11
11	1, 1, 11
	1, 1, 1

LCM of 50, 60 and 55 $= 2 \times 2 \times 3 \times 5 \times 5 \times 11 = 3300 \, \text{cm} = $ **33 m**

Thus, three persons will step again together after 33 m.

9. To find the smallest number, we take LCM of 42, 56 and 35 leaves.

$$\begin{array}{r|lll} 2 & 42, & 56, & 35 \\ \hline 2 & 21, & 28, & 35 \\ \hline 2 & 21, & 14, & 35 \\ \hline 3 & 21, & 7, & 35 \\ \hline 5 & 7, & 7, & 35 \\ \hline 7 & 1, & 7, & 7 \\ \hline & 1, & 1, & 1 \end{array}$$

LCM of 42, 56 and 35 = $2 \times 2 \times 2 \times 3 \times 5 \times 7 = 840$

Thus, the smallest number is 840 + 5 = **845**

10. To find the minimum number of flowers, we take LCM of 16, 25 and 36.

$$\begin{array}{r|lll} 2 & 16, & 25, & 36 \\ \hline 2 & 8, & 25, & 18 \\ \hline 2 & 4, & 25, & 9 \\ \hline 2 & 2, & 25, & 9 \\ \hline 3 & 1, & 25, & 9 \\ \hline 3 & 1, & 25, & 3 \\ \hline 5 & 1, & 25, & 1 \\ \hline 5 & 1, & 5, & 1 \\ \hline & 1, & 1, & 1 \end{array}$$

LCM of 16, 25 and 36 = $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 = $ **3600**

Thus, the minimum number of flowers is 3600. ❏

Unit-III : Fractional Numbers

7. Common Fractions

Exercise 7.1

1. $1\dfrac{1}{2}$ 2. $1\dfrac{4}{5}$ 3. 24   4. 14   5. $18\dfrac{1}{3}$

6. $40\dfrac{1}{2}$ 7. $\dfrac{5}{6}$ 8. 3   9. $\dfrac{1}{2}$ 10. $1\dfrac{1}{3}$

11. 2   12. 2

Exercise 7.2

1. $\dfrac{1}{11}$ 2. $\dfrac{5}{108}$ 3. $\dfrac{7}{66}$ 4. $\dfrac{3}{20}$ 5. $\dfrac{15}{32}$

6. $\dfrac{1}{2}$ 7. $\dfrac{5}{16}$ 8. $\dfrac{18}{35}$ 9. $63\dfrac{3}{4}$ 10. 3

11. $4\dfrac{1}{5}$ 12. $7\dfrac{11}{56}$ 13. 4 14. $2\dfrac{2}{5}$ 15. $8\dfrac{1}{2}$

16. $22\dfrac{2}{3}$ 17. $\dfrac{4}{15}$ 18. $\dfrac{2}{7}$ 19. $\dfrac{1}{2}$ 20. $1\dfrac{3}{5}$

Exercise 7.3

1. $\dfrac{7}{8}$ 2. $\dfrac{3}{5}$ 3. 5 4. $\dfrac{1}{2}$ 5. 0

6. $\dfrac{1}{3}$ 7. 1 8. 0 9. $7\dfrac{2}{3}$ 10. 1

11. 0 12. $7\dfrac{7}{8}$ 13. $\dfrac{1}{3}$ 14. $\dfrac{13}{18}$

Exercise 7.4

1. Fraction of field used for growing potatoes
$$= \frac{2}{15} \text{ of } \frac{1}{2} \text{ of the whole farm}$$
$$= \frac{2}{15} \times \frac{1}{2} = \mathbf{\frac{1}{15}}$$

Thus, $\dfrac{1}{15}$ of the whole farm is used for growing potatoes.

2. Monika ate $\dfrac{4}{5}$ of $\dfrac{1}{2}$ of whole cake $= \dfrac{4}{5} \times \dfrac{1}{2} = \mathbf{\dfrac{2}{5}}$

Thus, Monika ate $\dfrac{2}{5}$ part of the cake.

3. Duration of each period $= \dfrac{3}{4}$ hour

Total duration of all the periods $= \dfrac{3}{4} \times 6 = \dfrac{9}{2}$ hours $= \mathbf{4\dfrac{1}{2}}$ **hours**

Total duration of all periods is $4\dfrac{1}{2}$ hours.

4. Cost of 1 m cloth $= ₹\, 20\dfrac{1}{2}$

Cost of $2\dfrac{1}{4}$ m cloth $= 20\dfrac{1}{2} \times 2\dfrac{1}{4} = \dfrac{41}{2} \times \dfrac{9}{4} = \dfrac{369}{8} = ₹\, \mathbf{46\dfrac{1}{8}}$

Cost of $2\dfrac{1}{4}$ m of cloth is $₹\, 46\dfrac{1}{8}$.

5. Cost of one kilogram of apples = ₹ $17\dfrac{1}{2}$

Cost of $1\dfrac{1}{5}$ kg of apples = $17\dfrac{1}{2} \times 1\dfrac{1}{5} = \dfrac{35}{2} \times \dfrac{6}{5} = $ ₹ **21**

The cost of $1\dfrac{1}{5}$ kg of apples is ₹ 21.

6. Amount of salt in one bag = $\dfrac{9}{10}$ kg

Amount of salt in 25 bags = $\dfrac{9}{10} \times 25 = \dfrac{45}{2}$ kg = **22 $\dfrac{1}{2}$ kg**

Amount of salt in 25 bags is $22\dfrac{1}{2}$ kg.

7. Cost of each pencil = ₹ $3\dfrac{2}{5}$

Cost of 10 pencils = $3\dfrac{2}{5} \times 10 = \dfrac{17}{5} \times 10 = $ ₹ **34**

Cost of 10 pencils is ₹ 34.

8. Fraction of boys in class = $\dfrac{5}{9}$

Number of boys in 45 students = $\dfrac{5}{9} \times 45 = $ **25**

There are 25 boys in all.

9. Distance covered by an aeroplane in one hour = 500 km

Distance covered by an aeroplane in $2\dfrac{1}{5}$ hours = $500 \times 2\dfrac{1}{5}$

$$= 500 \times \dfrac{11}{5} = \textbf{1100 km}$$

Aeroplane covers 1100 km in $2\dfrac{1}{5}$ hours.

10. Daily consumption of milk = $2\dfrac{3}{5}$ L

Consumption of milk in September = $2\dfrac{3}{5} \times 30 = \dfrac{13}{5} \times 30 = $ **78 L**

78 L of milk was consumed in September.

11. Total capacity of parking place = 120 cars

Thus number of cars in the parking = $120 \times \dfrac{3}{8} = $ **45 cars**

There are 45 cars standing in the parking.

Exercise 7.5

1. $\dfrac{4}{3}$ **2.** $\dfrac{9}{7}$ **3.** $\dfrac{5}{11}$ **4.** $\dfrac{11}{15}$ **5.** $\dfrac{3}{5}$

6. $\dfrac{9}{52}$ **7.** 15   **8.** 12   **9.** $\dfrac{1}{2}$ **10.** $\dfrac{1}{10}$

11. $\dfrac{1}{17}$ **12.** $\dfrac{1}{15}$ **13.** 1   **14.** $\dfrac{8}{3}$ **15.** 1

16. $\dfrac{2}{7}$ **17.** 1   **18.** $\dfrac{2}{9}$

Exercise 7.6

1. $\dfrac{1}{5}$ **2.** $\dfrac{1}{10}$ **3.** $\dfrac{2}{5}$ **4.** $2\dfrac{2}{3}$ **5.** $2\dfrac{3}{4}$

6. $2\dfrac{3}{4}$ **7.** 6   **8.** 16   **9.** 12   **10.** $\dfrac{3}{5}$

11. $\dfrac{1}{3}$ **12.** $\dfrac{3}{4}$ **13.** $\dfrac{2}{7}$ **14.** 2   **15.** $4\dfrac{6}{7}$

16. 0   **17.** 1   **18.** 0   **19.** $3\dfrac{5}{7}$ **20.** 1

21. $9\dfrac{2}{7}$ **22.** 1   **23.** $\dfrac{4}{5}$ **24.** 1

Exercise 7.7

1. Cost of 1 ticket $= ₹\ 8\dfrac{1}{2} = ₹\ \dfrac{17}{2}$

Cost of 5 tickets $= \dfrac{17}{2} \times 5 = \dfrac{85}{2} = ₹\ \mathbf{42\dfrac{1}{2}}$

Cost of 5 tickets is $₹\ 42\dfrac{1}{2}$.

2. Length of ribbon $= 7\dfrac{4}{5}$ m

Total number of pieces in which it is to be cut $= 13$

Length of each piece $= 7\dfrac{4}{5} \div 13 = \dfrac{39}{5} \times \dfrac{1}{13} = \mathbf{\dfrac{3}{5}}$ **m**

Length of each piece of ribbon is $\dfrac{3}{5}$ m.

3. Total length of ribbon $= 33$ m

Number of $2\dfrac{3}{4}$ m pieces that can be cut $= 33 \div 2\dfrac{3}{4}$

$= 33 \div \dfrac{11}{4} = 33 \times \dfrac{4}{11} = \mathbf{12}$

Thus, 12 such pieces can be cut.

4. Product of two numbers $= 8\dfrac{2}{3}$

One of the numbers $= 3\dfrac{7}{15}$

19

Other number $= 8\dfrac{2}{3} \div 3\dfrac{7}{15} = \dfrac{26}{3} \div \dfrac{52}{15} = \dfrac{26}{3} \times \dfrac{15}{52} = \dfrac{5}{2} = \mathbf{2\dfrac{1}{2}}$

Other number is $2\dfrac{1}{2}$.

5. Number of total students $= 80$

On a certain day fraction of boys absent $= \dfrac{1}{10}$

Fraction of students present $= 1 - \dfrac{1}{10} = \dfrac{9}{10}$

Number of students that were present on that day $= 80 \times \dfrac{9}{10} = \mathbf{72}$

Thus, 72 students were present on that day.

6. Height of a pile of all books $= 15\dfrac{3}{5}$ cm

Thickness of each book $= 1\dfrac{1}{5}$ cm

Number of books which are make up the pile

$$= 15\dfrac{3}{5} \div 1\dfrac{1}{5} = \dfrac{78}{5} \div \dfrac{6}{5} = \dfrac{78}{5} \times \dfrac{5}{6} = \mathbf{13}$$

Thus, 13 books are make up the pile.

7. Total amount of rice $= 333\dfrac{1}{3}$ kg

Capacity of each bag $= 16\dfrac{2}{3}$ kg

Number of bags filled $= 333\dfrac{1}{3} \div 16\dfrac{2}{3} = \dfrac{1000}{3} \div \dfrac{50}{3}$

$$= \dfrac{1000}{3} \times \dfrac{3}{50} = \mathbf{20}$$

Thus, 20 bags will get filled.

8. Distance covered in $2\dfrac{1}{4}$ hours $= 1458$ km

Distance covered in hour $= 1458 \div 2\dfrac{1}{4} = 1458 \div \dfrac{9}{4} = 1458 \times \dfrac{4}{9}$

$$= \mathbf{648\ km}$$

Thus, aeroplane covers 648 km in one hour.

9. Total length of a string $= 3$ m

It is cut into 8 equal parts

Length of each part $= 3$ m $\div$ 8 $= \mathbf{\dfrac{3}{8}\ m}$

Length of each part is $\dfrac{3}{8}$ m.

10. Total amount of milk $= 17\dfrac{1}{2}\,\text{L}$

Number of $\dfrac{1}{2}\,\text{L}$ bottles that can be filled $= 17\dfrac{1}{2} \div \dfrac{1}{2} = \dfrac{35}{2} \times 2 = \mathbf{35}$

Thus, 35 bottles of half litre milk can be filled.

11. Cost of 1 kg rice $= ₹\, 18\dfrac{3}{4}$

Amount of rice purchased by $₹\, 375 = 375 \div 18\dfrac{3}{4} = 375 \div \dfrac{75}{4}$

$$= 375 \times \dfrac{4}{75} = \mathbf{20\ kg}$$

Thus, 20 kg rice can be bought.

12. Fraction of girls in a school $= \dfrac{2}{5}$

Now, $\dfrac{2}{5} \times$ (Number of total students) $= 174$

Number of total students $= 174 \times \dfrac{5}{2} = \mathbf{435}$

Thus, there are total 435 students in the school.

❏

8.   Decimal Fractions

Exercise 8.1

1. 0.2	**2.** 0.9	**3.** 1.5	**4.** 1.8
5. 0.17	**6.** 0.07	**7.** 0.001	**8.** 0.002
9. 0.009	**10.** 0.015	**11.** 0.020	**12.** 1.01
13. 3.3	**14.** 5.7	**15.** 5.07	**16.** 5.007
17. 4.19	**18.** 3.331	**19.** 56.01	**20.** 16.019
21. 125.6	**22.** 12.56	**23.** 1.256	**24.** 0.1256
25. $\dfrac{2}{10}$	**26.** $\dfrac{2}{100}$	**27.** $\dfrac{2}{1000}$	**28.** $\dfrac{2}{10000}$
29. $\dfrac{15}{10}$	**30.** $\dfrac{15}{100}$	**31.** $\dfrac{15}{1000}$	**32.** $\dfrac{15}{10000}$
33. $402\dfrac{3}{10}$	**34.** $40\dfrac{23}{100}$	**35.** $4\dfrac{23}{1000}$	**36.** $\dfrac{4023}{10000}$
37. $640\dfrac{98}{100}$	**38.** $225\dfrac{789}{1000}$	**39.** $23\dfrac{965}{1000}$	**40.** $6\dfrac{55}{10000}$

1. 4 ones 3 tenths 5 hundredths
2. 5 tens 1 one 7 tenths 2 hundredths
3. 2 hundreds 6 ones 3 tenths 8 thousandths
4. 3 hundreds 1 ten 5 ones 2 tenths 8 hundredths 7 thousandths
5. $20 + 3 + 0.7 + 0.04 + 0.002; 20 + 3 + \dfrac{7}{10} + \dfrac{4}{100} + \dfrac{2}{1000}$
6. $100 + 70 + 5 + 0.8 + 0.07 + 0.006; 100 + 70 + 5 + \dfrac{8}{10} + \dfrac{7}{100} + \dfrac{6}{1000}$
7. $300 + 80 + 3 + 0.9 + 0.02 + 0.009;$
   $300 + 80 + 3 + \dfrac{9}{10} + \dfrac{2}{100} + \dfrac{9}{1000};$
8. $4000 + 500 + 20 + 4 + 0.3 + 0.06 + 0.007;$
   $4000 + 500 + 20 + 4 + \dfrac{6}{100} + \dfrac{7}{1000}$
9. tenths
10. ones; tenths
11. hundredth
12. 10
13. hundredths; thousandths
14. 7; 3
15. 752.125
16. 468.305
17. 543.257
18. 70.57
19. unlike
20. like
21. like
22. unlike
23. 753.846; 523.100; 25.320
24. 0.790; 116.005; 5.100
25. 543.208; 4.520; 6.070
26. 7.030; 4.020; 2.001
27. 0.75
28. 6.99
29. 12.5
30. 2.1
31. 2.101
32. 12.68
33. >
34. <
35. <
36. 2.02; 2.003; 2.001; 2.0004
37. 1.01; 1.001; 0.101; 0.010
38. 4.005; 4.03; 4.053; 4.5
39. 30.009; 30.17; 30.7; 30.71

❏

9. Operations in Decimal Fractions

Exercise 9.1

1. 7.3
2. 10.143
3. 18.085
4. 217.785
5. 710.776
6. 4.55
7. 3.335
8. 11.344
9. 12.515
10. 36.184

11. Rainfall on three consecutive months   30.56

       = 30.56 cm, 23.20 cm and 5.7 cm.   23.20

Total rainfall in three months = 30.56 + 23.20 + 5.7   + 5.70

               = **59.46 cm**   59.46

Thus, it rained 59.46 cm in three months.

12. Total amount of water in barrel = 86.7 L   86.70

Amount of water used = 32.41 L   − 32.41

Amount of water left = 86.7 − 32.41 = **54.29 L**   54.29

Thus, there is 54.29 L of water left.

13. Total stocks of rice = 84.2 kg   84.200

Amount of rice sold = 67.750 kg   − 67.750

Amount of rice left = 84.2 − 67.750 = **16.45 kg**   16.450

Thus, 16.45 kg of rice was left.

14. Capacity of drum = 200 L   200.00

Oil in the drum = 125.4 L   − 125.40

Oil that can be poured in the drum = 200 − 125.4   74.60

               = **74.6 L**

Thus, 74.6 L more oil can be poured in the drum.

15. Distance covered by bus = 37.4 km   37.400   42.000

Distance covered by scooter = 4.150 km   +4.150   −41.550

Total distance covered = 42 km   41.550   0.450

∴ Distance covered on foot

       = 42 − (37.4 + 4.150)

       = 42 − 41.55 = **0.45 km**

Parul covered 0.45 km on foot.

16. Cost of diary = ₹ 21.25   21.25   100.00

Cost of pen = ₹ 8.50   8.50   − 48.45

Cost of notebook = ₹ 18.70   + 18.70   51.55

Total amount given to shopkeeper = ₹ 100   48.45

Amount that Amina will get back

       = 100 − (21.25 + 8.50 + 18.70)

       = 100 − 48.45 = ₹ **51.55**

Amina will get back ₹ 51.55.

17. Total quantity of milk with vendor = 20 L   3.500   20.00

Milk sold to three customers respectively   4.250   −14.75

       = 3.5 L, 4.250 L, 7 L   +7.000   5.25

Quantity of milk left = 20 − (3.5 + 4.250 + 7)   14.750

       = 20 − 14.75 = **5.25 L**

Thus, milk left with the milk vendor now is 5.25 L.

18. Cost of gents watch = ₹ 747.50

Cost of ladies watch = ₹ 835.75

Amount given to shopkeeper by Sonia

$\qquad = 4 \times 500 = 2000$

747.50	2000.00
+ 835.75	−1583.25
1583.25	416.75

Amount that she will get back = 2000 − (747.50 + 835.75)

$\qquad\qquad\qquad = 2000 - 1583.25 = ₹\ \textbf{416.75}$

Sonia will get back ₹ 416.75.

Exercise 9.2

1. 4.5	**2.** 29.9	**3.** 166.4
4. 66.5	**5.** 16.944	**6.** 716.25
7. 28.38	**8.** 1752.14	**9.** 2572.5
10. 995.4	**11.** 2606.877	**12.** 290.529
13. 83.4	**14.** 320.3	**15.** 4287.1
16. 342.8	**17.** 50.01	**18.** 730
19. 5328	**20.** 9010	**21.** 10
22. 100	**23.** 100	**24.** 1.235
25. 0.429	**26.** 7.8	

27. Amount of wheat in one bag = 99.6 kg

Amount of wheat in 1000 bags = 99.6 × 1000 = 99600.0

$\qquad\qquad\qquad\qquad = \textbf{99600 kg}$

Thus, 1000 such bags contained 99600 kg of wheat.

28. Weight of one litre of kerosene = **0.8 kg**

Weight of 10 litre of kerosene = 0.8 × 10 = 8.0 kg

Thus, weight of 10 litre of kerosene is 8 kg.

29. Cost of 1 litre of diesel = ₹ 13.70

Cost of 100 litre of diesel = 13.70 × 100 = ₹ 1370.00 = ₹ **1370**

Thus, cost of 100 litre of diesel is ₹ 1370.

30. Cost of 1 kg of sugar = ₹ 15.50

Cost of 25 kg of sugar = 15.50 × 25 = ₹ **387.50**

Thus, cost of 25 kg of sugar is ₹ 387.50.

31. Cost of 1 m of cloth = ₹ 52.75

Cost of 12 m of cloth = ₹ 52.75 × 12 = ₹ **633**

Thus, cost of 12 m of cloth is ₹ 633.

32. Amount of rice in each bag = 16.75 kg

Weight of 65 such bags = 16.75 × 65 = **1088.75 kg**

Weight of 65 bags is 1088.75 kg.

Exercise 9.3

1. 0.06	**2.** 8.74	**3.** 0.175	**4.** 10.591
5. 3.468	**6.** 3.54	**7.** 39.312	**8.** 14.44

9. 0.0006　　**10.** 2.12159　　**11.** 10.28736　**12.** 8.1002

13. 0.008　　**14.** 0.0002　　**15.** 0.013　　**16.** 0.22

17. 0.857　　**18.** 0　　　　**19.** 4.5　　　**20.** 4.7

21. 1　　　　**22.** 0

23. Cost of 1 L of milk = ₹ 16.50

Cost of 1.6 L of milk = 16.50 × 1.6 = ₹ **26.40**

Cost of 1.6 L of milk is ₹ 26.40.

$$\begin{array}{r} 16.50 \\ \times\ 1.6 \\ \hline 9\ 900 \\ 1650\times \\ \hline 26.400 \\ \hline \end{array}$$

24. Cost of 1 m of cloth = ₹ 48.50

Cost of 1.70 m of cloth = 48.50 × 1.70 = ₹ **82.45**

Thus, cost of 1.70 m of cloth is ₹ 82.45.

25. Cost of 1 kg of sugar = ₹ 15.50

Cost of 10.500 kg of sugar = 15.50 × 10.500 = ₹ **162.75**

Cost of 10.500 kg of sugar is ₹ 162.75.

Exercise 9.4

1. 1.4　　　　**2.** 0.6　　　　**3.** 0.6　　　**4.** 0.75

5. 7.5　　　　**6.** 0.0075　　**7.** 0.96　　**8.** 0.282

9. 0.016　　**10.** 4.811　　**11.** 4.223　　**12.** 4.225

13. 2.155　　**14.** 2.03　　**15.** 0.826　　**16.** 6.123

17. 0.014　　**18.** 0.08　　**19.** 0.0036　　**20.** 0.8367

21. 0.0027

22. Cost of 15 copies = ₹ 148.50

Cost of 1 copy = 148.50 ÷ 15 = ₹ **9.90**

$$\begin{array}{r} 9.90 \\ 15)\overline{\ 148.50} \\ \underline{135}\downarrow \\ 135 \\ \underline{135} \\ 00 \end{array}$$

Cost of each copy is ₹ 9.90.

23. Total length of ribbon = 4.27 m

Number of pieces in which it is to be cut = 7

Length of each piece = 4.27 ÷ 7 = **0.61 m**

$$\begin{array}{r} 0.61 \\ 7)\overline{\ 4.27} \\ \underline{42}\downarrow \\ 7 \\ \underline{7} \\ 0 \end{array}$$

Length of each piece of ribbon is 0.61 m.

24. Distance covered by superfast train in 10 hours = 724.7 km
Distance covered by superfast train in 1 hour
$$= 724.7 \div 10 = \textbf{72.47 km}$$
Train covers 72.47 km in one hour.

25. Value of 10 gram of silver = ₹ 70.50
Value of 1 gram of silver = 70.50 ÷ 10 = ₹ **7.050**
Value of 1 gram of silver is ₹ 7.050.

26. Consumption of petrol for 50 km = 3.2 L
Consumption of petrol for 1 km = 3.2 ÷ 50 = **0.064 L**

```
        0.064
50) 3.20
    300
    200
    200
      0
```

0.064 L of petrol is consumed per kilometer.

27. Amount of medicine in 81 bottles = 29.16 L
Amount of medicine in 1 bottle – 29.16 ÷ 81
$$= \textbf{0.36 L}$$

```
         0.36
81) 29.16
    243↓
    486
    486
      0
```

There was 0.36 L of medicine in each bottle.

Exercise 9.5

1. 13	**2.** 3	**3.** 2.1	**4.** 0.5
5. 6	**6.** 12.1	**7.** 370	**8.** 0.99
9. 13.3	**10.** 2000	**11.** 80	**12.** 900
13. 50	**14.** 8	**15.** 113.2	**16.** 3.75
17. 0.175	**18.** 0.875	**19.** 0.208	**20.** 0.1625
21. 0.06	**22.** 0.625	**23.** 0.2	**24.** 0.08
25. 1.36	**26.** 0.64	**27.** 0.975	

28. Length of cloth required for one shirt = 1.8 m
Number of shirts made from 27 m cloth = 27 ÷ 1.8
$$= \frac{27}{1.8} = \frac{270}{18} = \textbf{15}$$

```
        15
18) 270
    18↓
    90
    90
     0
```

Thus, 15 shirts can be made from 27 m of cloth.

29. Distance covered in one step – 0.6 m

Number of steps taken to walk 72 m $= 72 \div 0.6$

$$= \frac{72 \times 10}{6} = \frac{720}{6} = \mathbf{120}$$

$$
\begin{array}{r}
120 \\
6)\overline{720} \\
\underline{6\downarrow} \\
12 \\
\underline{12} \\
00
\end{array}
$$

Thus, number of steps taken is 120 to walk 72 m.

30. Cost of 8.75 m of cloth = ₹ 490

Cost of 1 m of cloth $= 490 \div 8.75$

$$= \frac{490 \times 100}{875}$$

$$= \frac{49000}{875} = ₹ \ \mathbf{56}$$

$$
\begin{array}{r}
56 \\
875)\overline{49000} \\
\underline{4375}\downarrow \\
5250 \\
\underline{5250} \\
0
\end{array}
$$

Cost of 1 m of cloth is ₹ 56.

31. Capacity of packet of rice = 8.75 kg.

Number of packets required for 2187.5 kg of rice

$$= 2187.5 \div 8.75 = \frac{2187.50}{8.75} = \frac{218750}{875} = \mathbf{250}$$

$$
\begin{array}{r}
250 \\
875)\overline{218750} \\
\underline{1750}\downarrow \\
4375 \\
\underline{4375}\downarrow \\
00
\end{array}
$$

Thus, 250 such packets can be filled.

32. Cost of 8 kg of tomatoes = ₹ 54

Cost of 1 kg of tomatoes $= 54 \div 8 = ₹ \ \mathbf{6.75}$

$$
\begin{array}{r}
6.75 \\
8)\overline{54} \\
\underline{48} \\
60 \\
\underline{56} \\
40 \\
\underline{40} \\
0
\end{array}
$$

Thus, cost of 1 kg of tomatoes is ₹ 6.75.

❏

10. Metric Measures in Decimals

1. 976.305 L; 0.976305 kL **2.** 654.123 g; 0.654123 kg
3. 53.214 m; 0.053214 km **4.** 120 g; 1,20,000 mg
5. 0.0505 kg **6.** 2500 mL
7. 7321 g; 73,21,000 mg **8.** 5230 m; 52,30,000 mm
9. 0,0079 km; 7900 mm **10.** 0.00523 kg; 5230 mg
11. 1 km 5 hm 4 decam 3 m 9 dm 2 cm 6 mm

Exercise 10.2

1. Capacity of 1 bottle = 750 mL
   Capacity of 46 such bottles = 750 × 46 = 34500 mL
   $$= \frac{34500}{1000} \text{L} = \textbf{34.5 L}$$
   Thus, 46 such bottles can hold 34.5 L oil.

2. Capacity of 1 sack = 99.525 kg
   Capacity of 78 such sacks = 99.525 × 78 = **7762.95 kg**
   Thus, 7762.95 kg of wheat will such 78 bags contain.

3. Cost of 1 m terycot cloth = ₹ 41.50
   Cost of 2.10 m cloth = 41.50 × 2.10 = ₹ **87.15**
   Thus, cost of 2.10 m cloth is ₹ 87.15.

4. Price of apple per kg = ₹ 12.50
   Price of 2 kg 200 g apples = 12.50 × 2.200 = ₹ **27.50**
   Thus, the price of 2 kg 200 g apples is ₹ 27.50.

5. Weigh of one litre spirit = 800 g
   Weight of 2 L 750 mL of spirit = 800 × 2.750 = 2200 g
   $$= \frac{2200}{1000} \text{kg} = \textbf{2.2 kg}$$
   Weight of 2 L 750 mL of spirit is 2.2 kg.

6. Weight of 5 L 50 mL oil = 4 kg 40 g = 4.040
   Weight of 1 L oil = 4.040 ÷ 5.050 = 0.8 kg = **0.8 kg**
   Weight of 1 L oil is 0.8 kg.

7. Cost of 3.2 kg ghee = ₹ 448
   Cost of 1 kg ghee = 448 ÷ 3.2 = ₹ **140**
   Thus, cost of 1 kg ghee is ₹ 140.

8. Thickness of one sheet of plywood = 0.25 cm

Number of sheets required to make thickness 1 m (100 cm)

$$= 100 \div 0.25 = \mathbf{400}$$

Thus, 400 such sheets are required.

9. Measurement of 1 kg of oil = 1 L 220 mL = 1.220 L

Measurement of 3 kg 50 g oil = 1.220 × 3.050 = 3.721 L

$$= \mathbf{3\,L\,721\,mL}$$

Thus, measurement of 3 kg 50 g oil is 3 L 721 mL.

10. Weight of 3.65 m metal rod = 12 kg 775 g = 12.775 kg

Weight of 1 m metal rod = 12.775 ÷ 3.65 = 3.5 kg = **3 kg 500 g**

Thus, weight of 1 m metal rod is 3 kg 500 g.

❏

11. Temperature

Exercise 11.1

1. extremely hot **2.** cold   **3.** very cold

4. mild   **5.** very hot   **6.** extremely hot

7. extremely hot **8.** warm

Exercise 11.2

1. (i) 0 (ii) 100 (iii) 98.6 (iv) 1.8 (v) mercury (vi) rises

2. (i) 35°C (ii) 40°C (iii) 50°C (iv) 80.5°C

3. (i) 68°F (ii) 113°F (iii) 212°C (iv) 203.9°F

4. Normal temperature of body = 98.6°F

Body temperature of a patient = 98.6°F + 4.5°F = **103.1°F**

$$\text{In °C} = 103.1 - 32 = 71.1$$

$$71.1 \times \frac{5}{9} = \mathbf{39.5°C}$$

Thus, his body temperature in °F is 103.1 and °C is 39.5.

5. Difference of maximum and minimum temperature

$$= 40°C - 25°C = 15°C$$

$$15°C \text{ to } °F = \left(15 \times \frac{9}{5} + 32 \right)°F = 27 + 32 = 59°F$$

6. Do it yourself.

Unit-IV : Estimation

12. Simplification of Numerical Expressions

Exercise 12.1

1. 54	**2.** 27	**3.** 121	**4.** 22	**5.** 26
6. 14	**7.** $\frac{1}{6}$	**8.** 17	**9.** $4\frac{11}{12}$	**10.** $2\frac{29}{32}$
11. $6\frac{1}{2}$	**12.** $2\frac{1}{4}$	**13.** $1\frac{11}{32}$	**14.** $1\frac{5}{8}$	**15.** 9.71
16. 12.63	**17.** $1\frac{5}{18}$	**18.** $7\frac{7}{18}$	**19.** 0.73	**20.** 4.82

Exercise 12.2

1. 2	**2.** 3	**3.** 6	**4.** 25	**5.** 13
6. 2	**7.** 1	**8.** $1\frac{3}{4}$	**9.** $2\frac{1}{2}$	**10.** $5\frac{1}{6}$
11. $3\frac{5}{8}$	**12.** $\frac{1}{20}$	**13.** $16\frac{1}{5}$	**14.** $19\frac{1}{2}$	**15.** 13.75
16. 2.2	**17.** 11.45	**18.** 1.3	**19.** 5.65	**20.** 0.13

❏

13. Approximation (Rounding off)

Exercise 13.1

1. (i) 80 (ii) 120 (iii) 340 (iv) 1000 (v) 6880
2. (i) 100 (ii) 200 (iii) 1100 (iv) 4700 (v) 13,200
3. (i) 4000 (ii) 5000 (iii) 11,000 (iv) 17,000 (v) 1,83,000
4. (i) 10,000 (ii) 10,000 (iii) 30,000 (iv) 80,000 (v) 2,40,000
5. (i) 6,000 (ii) 39,000 (iii) 9,000 (iv) 12,000 (v) 23,000
6. (i) ₹ 1100 (ii) ₹ 2700 (iii) ₹ 8600 (iv) ₹ 18,400
7. (i) 7800 m (ii) 8100 m (iii) 8600 m (iv) 8800 m
8. 34,70,000; 35,00,000
9. (i) 10 crore (ii) 20 crore (iii) 6 crore (iv) 9 crore
10. (i) 15 crore km; (ii) 1490 million km

1. (i) 6 (ii) 91 (iii) 101 (iv) 514 (v) 1031
2. (i) 2.5 (ii) 13.4 (iii) 35.1 (iv) 525.2 (v) 1234.2
3. (i) 23.15 (ii) 8.01 (iii) 7.49 (iv) 37.10 (v) 463.80
4. (i) 52.179 (ii) 46.006 (iii) 29.773 (iv) 18.964 (v) 42.170
5. (i) 31.88 (ii) 41.01 (iii) 29.05
6. (i) 0.333 (ii) 0.167 (iii) 0.889 (iv) 0.364 (v) 0.429
7. Length of carpet = 2.33 m
   Breadth of carpet = 1.15 m
   Area of carpet = length × breadth
   $$= 2.33 \times 1.15 = 2.6795 = \mathbf{2.68\ m^2}$$
8. Price of 1 m of cloth = ₹ 17.50
   Price of 2.65 m of cloth = 17.50 × 2.65 = ₹ **46.375**
   (i) ₹ 46.38   (ii) ₹ 46.

❑

14.   Average

Exercise 14

1. Temperature of the town during a week = 43, 40, 39, 40, 36, 43 and 39
   $$\text{Average daily temperature} = \frac{\text{Sum of quantities}}{\text{No. of quantities}}$$
   $$= \frac{43 + 40 + 39 + 40 + 36 + 43 + 39}{7}$$
   $$= \frac{280°}{7}\,C = \mathbf{40°C}$$
   Daily average temperature of the town is 40°C.
2. Height of three jumps = 160 cm, 162 cm and 164 cm
   $$\text{Average height of jumps} = \frac{160 + 162 + 164}{3} = \mathbf{162\ cm}$$
   Average height of three jumps is 162 cm.
3. Number of students in class I to V = 39, 36, 33, 34 and 28
   Average number of students in a class
   $$= \frac{39 + 36 + 33 + 34 + 28}{5} = \frac{170}{5} = \mathbf{34}$$
   Thus, average number of students in a class is 34.
4. Rainfall recorded for half the year = 2.7 cm, 5.3 cm, 8.5 cm, 4.8 cm, 5.5 cm and 3.2 cm

Monthly average rainfall $= \dfrac{2.7 + 5.3 + 8.5 + 4.8 + 5.5 + 3.2}{6}$

$$= \dfrac{30.0}{6} = \textbf{5 cm}$$

Average monthly rainfall is 5 cm.

5. Scores in eight innings of batsman $= 22, 15, 0, 23, 8, 45, 11, 52$

Average score of batsman

$$= \dfrac{12 + 15 + 0 + 23 + 8 + 45 + 11 + 52}{8}$$

$$= \dfrac{176}{8} = \textbf{22}$$

Average innings score of batsman is 22.

6. Heights of Shilpa, Shipra, Shaila, Shaifali and Seema

$= 1 m 10 cm, 1 m 3 cm, 1 m 15 cm, 1 m 7 cm, 1 m 5 cm$ respetively.

Average height $= \dfrac{1.10 + 1.03 + 1.15 + 1.07 + 1.05}{5} = \dfrac{5.40}{5}$ cm

$= 1.08 = \textbf{1 m 8 cm}$

Their average height is 1 m 8 cm.

7. Weights of 7 travellers $= 91.2 kg, 72.5 kg, 53.9 kg, 78.4 kg, 64.8 kg, 81.6 kg$ and $89.6 kg$ respectively.

Average weight

$$= \dfrac{91.2 + 72.5 + 53.9 + 78.4 + 64.8 + 81.6 + 89.6}{7}$$

$$= \dfrac{532}{7} kg = \textbf{76 kg}$$

Average weight of travellers is 76 kg.

8. Average weekly attendance of class IV

$$= \dfrac{40 + 40 + 38 + 43 + 40 + 33}{6} = \dfrac{234}{6} = \textbf{39}$$

Average weekly attendance of class V

$$= \dfrac{49 + 35 + 37 + 41 + 39 + 45}{6} = \dfrac{246}{6} = \textbf{41}$$

Thus, average attendance of class V is more.

9. Train's speed for first three hours $= 65 km/hr$

Train's speed for next two hours $= 70 km/hr$

Average speed of the train $= \dfrac{65 + 65 + 65 + 70 + 70}{5}$

$$= \dfrac{335 \ km}{5 \ hr} = \textbf{67 km/hr}$$

Average speed of train for 5 hours is 67 km/hr.

10. For 6 days sales of a cooperative store = ₹ 7374

Average daily sale = $\dfrac{7374}{6}$ = ₹ **1229**

Average daily sale of a cooperative store is ₹ 1229.

11. Average weekly consumption of sugar in family A

$$= \frac{3.2 + 3.5 + 3 + 3.1}{4} = \frac{12.8}{4} = \textbf{3.2 kg}$$

Average weekly consumption of sugar in family B

$$= \frac{2.3 + 3.2 + 3.2 + 2.5}{4} = \frac{11.2}{4} = \textbf{2.8 kg}$$

Average weekly consumption of sugar in family A is more.

12. Average minimum temperature of town A

$$= \frac{3 + 6 + 8 + 9 + 10 + 8 + 5}{7} = \frac{49°C}{7} = 7°C$$

Average minimum temperature of town B

$$= \frac{4 + 7 + 8 + 10 + 11 + 13 + 10}{7} = \frac{63°C}{7} = 9°C$$

Thus, town A is colder during a week of winter.

13. Average height of 5 children in a group = 1 m 10 cm = 1.10 cm

Height of sixth child = 1 m 40 cm = 1.40 m

Average height of six children

$$= \frac{\text{Sum of 5 children's heights + Height of sixth child}}{6}$$

Sum of heights of 5 children = 1.10 × 5 = 5.5 m

Average height of six children = $\dfrac{5.5 + 1.40}{6}$ = 1.15 m = **1 m 15 cm**

Thus, average height of six children is 1 m 15 cm.

14. Average price of three chairs = ₹ 130

Sum of the price of three chairs = 130 × 3 = ₹ 390

Price of two given chairs = ₹ 125 and ₹ 140

Price of third chair = 390 − (125 + 140) = 390 − 265 = ₹ **125**

Price of third chair is ₹ 125.

15. Average salary of 6 officers = ₹ 3500

We know, Average = $\dfrac{\text{Sum of quantities}}{\text{Number of quantities}}$

Sum of salary 6 officers = 3500 × 6 = ₹ 21000

Average salary of 7 officers = ₹ 3300

Sum of 6 officers salary = 3300 × 6 = ₹ 23100

Salary of 7th officer = 23100 − 21000 = ₹ **2100**

Thus, the salary of 7th officer is ₹ 2100.

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Unit-V : Commercial Mathematics

15. Percentage

Exercise 15.1

1. 64%	**2.** 60%	**3.** 62.5%
4. 43.75%	**5.** 23.5%	**6.** 15%
7. 75.7%	**8.** 2.3%	**9.** 25%
10. 10%	**11.** 50%	**12.** 5%
13. 35%	**14.** 4%	**15.** 12.5%
16. 50%	**17.** 4%	**18.** 0.5%
19. $\dfrac{16}{25}$	**20.** $\dfrac{2}{5}$	**21.** $\dfrac{27}{50}$
22. $\dfrac{37}{300}$	**23.** 0.08	**24.** 0.125
25. 0.12	**26.** 0.035	**27.** ₹ 35
28. 40 g	**29.** 45 m	**30.** 45 ml
31. 30% of 50	**32.** 25% of 200	**35.** 50 m
36. 20%	**37.** 150	

Exercise 15.2

1. Number of marks that John get = 85% of 700

$$= \frac{85}{100} \times 700 = \textbf{595}$$

Thus, John got 595 marks.

2. Number of games won by team = 70% of 10 = $\dfrac{70}{100} \times 10 = 7$

Number of games lost by team = 10 − 7 = **3**

Thus, team won 7 matches and lost 3 matches.

3. Total amount of money collected by students = ₹ 2500

Amount of money given by Manju = 15% of 2500

$$= \frac{15}{100} \times 2500 = ₹ \textbf{375}$$

Thus, Manju contributed ₹ 375.

4. Weight of tin box = 8 kg

Weight of suitcase = 8 − 40% of 8

$$= 8 - \frac{40}{100} \times 8 = 8 - 3.2 = \textbf{4.8 kg}$$

Thus, weight of suitcase is 4.8 kg.

5. Weight of Jaya = 35 kg

Weight of her brother = 35 + 20% of 35

$$= 35 + \frac{20}{100} \times 35 = 35 + 7 = \textbf{42 kg}$$

Thus, weight of Jaya's brother is 42 kg.

6. Total amount of money with Pari = ₹ 244

Money spent by her = 75% of 244

$$= \frac{75}{100} \times 244 = ₹ \ 183$$

Thus, money left with Laxmi = 244 − 183 = ₹ **61**

Thus, Pari had ₹ 61 left with her.

7. Total number of students = 96

Number of students passed = 36

Percentage of students passed $= \frac{36}{96} \times 100 = \frac{75}{2} = \textbf{37.5\%}$

% of students failed $= \frac{96 - 36}{96} \times 100 = \frac{60}{96} \times 100 = \frac{125}{2} = \textbf{62.5\%}$

8. Marks scored by student = 870

Total marks = 1000

Percentage of marks scored $= \frac{870}{1000} \times 100 = \textbf{87\%}$

Students scored 87% marks.

9. Minimum passing marks = 36%

Marks obtained by student = 440

Now, 36% of total marks = 440 + 100

$\frac{36}{100}$ of total marks = 540

Total marks $= 540 \times \frac{100}{36} = \textbf{1500}$

Thus, the maximum marks is 1500.

10. Percentage of women = 45%

∴ Percentage of men = 100 − 45 = 55%

Now, 55% of total population = 11495

$\frac{55}{100} \times$ Total population = 11495

Total population $= 11495 \times \frac{100}{55} = \textbf{20900}$

Total population of village is 20900.

11. Percentage of students present = 96%

Percentage of students absent = 100% − 96% = 4%

Now, 4% of total students = 20

$$\frac{4}{100} \times \text{Total students} = 20$$

$$\text{Total students} = 20 \times \frac{100}{4}$$

Total students = **500**

Total number of students are 500.

12. Air fare from Delhi to Kolkata = ₹ 2250 + 10% tax

$$= 2250 + \frac{10}{100} \times 2250 = 2250 + 225 = ₹ \textbf{ 2475}$$

Total air fare of a round trip = 2 × 2475 = ₹ 4950

Thus, total air fare of a round trip is ₹ 4950.

13. Salary of Mr. Brown = ₹ 3000 per month

His annual salary = 3000 × 12 = ₹ 36000

Bonus received by him = 15% of 36000

$$= \frac{15}{100} \times 36000 = ₹ \textbf{ 5400}$$

Mr. Brown will get bonus of ₹ 5400.

14. Cost of cooler = ₹ 2000

Rebate given by shopkeeper = ₹ 125

Percentage of rebate $= \dfrac{125}{2000} \times 100 = \textbf{6.25\%}$

Shopkeeper gave 6.25% of rebate.

15. Total plants planted by students of ABC English School = 600

Number of plants grown up = 420

Percentage of plants grown up $= \dfrac{420}{600} \times 100 = \textbf{70\%}$

Thus, 70% of plants were grown up.

❑

16.   Profit and Loss

Exercise 16.1

1. 6	**2.** 100	**3.** 22
4. 9	**5.** 16	**6.** loss ₹ 50
7. profit ₹ 100	**8.** profit ₹ 90	**9.** profit ₹ 3.50

10. loss ₹ 1.75

11. Cost price of 20 dozens bananas = ₹ 100

Selling price of 1 dozen banana = ₹ 5.50

Selling price of 20 dozens bananas $= 20 \times 5.50 = ₹ 110$
Gain $= SP - CP = ₹ (110 - 100) = ₹ \mathbf{10}$
Thus, gain of Abdul is ₹ 10.

12. Cost price of 20 pencils $= ₹ 80$
Cost price of 1 pencil $= \dfrac{80}{20} = ₹ 4$
Selling price of 1 pencil $= ₹ 5$
Selling price of 20 pencils $= 20 \times 5 = ₹ 100$
Profit $=$ Selling price $-$ Cost price
Profit $= ₹ 100 - ₹ 80 = ₹ \mathbf{20}$
Thus, profit of Arnav is ₹ 20.

13. Cost price of 1 litre of milk $= ₹ 15$
Cost price of 12 litres of milk $= 15 \times 12 = ₹ 180$
Amount of water added $= 2 L$
Total mixture $= 12 + 2 = 14 L$
SP of 1 litre of mixture $= ₹ 18$
SP of 14 litres of mixture $= 18 \times 14 = ₹ 252$
Profit $= SP - CP$
Profit $= ₹ (252 - 180) = ₹ \mathbf{72}$
Thus, profit of a milkman was ₹ 72.

14. Cost price of 1 chair $= ₹ 72$
Cost price of 40 chairs $= 72 \times 40 = ₹ 2880$
Chair kept by Raman for his use $= 4$
Chairs left $= 40 - 4 = 36$
Selling price of 1 chair $= ₹ 84$
Selling price of 36 chairs $= 84 \times 36 = ₹ 3024$
Profit $= SP - CP = ₹ (3024 - 2880) = ₹ \mathbf{144}$
Thus, profit of ₹ 144 was made.

15. Cost price of TV $= ₹ 2325$
Cost of transport $= ₹ 75$
Total cost price $= 2325 + 75 = ₹ 2400$
Selling price of TV $= ₹ 2350$
As CP > SP therefore loss
Loss $= CP - SP$
Loss $= ₹ (2400 - 2350) = ₹ \mathbf{50}$
Thus, Seema suffers loss of ₹ 50.

Exercise 16.2

1. 450   2. 570   3. 930   4. 840   5. 888

6. Cost price of a VCR = ₹ 9500

Profit = ₹ 1250

SP = ?

SP = CP + Profit = 9500 + 1250 = ₹ **10750**

7. SP of refrigerator = ₹ 7200

Profit = ₹1050

CP of refrigerator = ?

CP = SP − Profit = 7200 − 1050 = ₹ **6150**

8. CP of a table = ₹ 785

Profit = ₹ 75

SP = ?

SP = CP + Profit = 785 + 75 = ₹ **860**

9. Number of washing cakes = 100

SP of 1 washing cake = ₹ 9.50

SP of 100 washing cakes = 9.50 × 100 = ₹ 950

Profit = ₹ 40

CP = SP − Profit = 950 − 40 = ₹ **910**

CP of each washing cake = $\dfrac{910}{100}$ = ₹ **9.10**

10. SP of car = ₹ 51,000

Profit = ₹ 3000

CP = ?

CP = SP − Profit = ₹ 51000 − ₹ 3000 = ₹ **48000**

11. SP of a TV = ₹ 10900

Loss = ₹ 850

CP = ?

CP = SP + Loss = 10900 + 850 = ₹ **11750**

12. SP of saree = ₹ 3075

Profit = ₹ 275

CP = ?

CP = SP − Profit = ₹ 8075 − ₹ 275 = ₹ **2800**

Exercise 16.3

1. loss 10%   **2.** profit 25%   **3.** profit 20%

4. profit 20%   **5.** loss 4%   **6.** profit

7. loss   **8.** loss   **9.** profit

10. CP of clock = ₹ 250

SP of clock = ₹ 225

Loss % = ?

Loss $=$ CP $-$ SP $= 250 - 225 =$ ₹ 25

Loss percentage $= \dfrac{\text{Loss}}{\text{CP}} \times 100 = \dfrac{25}{250} \times 100 =$ **10%**

11. Loss or profit percentage is calculated on CP.

12. SP of painting $=$ ₹ 300

CP of painting $=$ ₹ 250

Profit % $= ?$

Profit $=$ SP $-$ CP $= 300 - 250 =$ ₹ 50

Profit percentage $= \dfrac{\text{Profit}}{\text{CP}} \times 100 = \dfrac{50}{250} \times 100 =$ **20%**

13. CP of apples $=$ ₹ 20 per dozen

SP of apples $=$ ₹ 24 per dozen

Profit % $= ?$

Profit $=$ SP $-$ CP $= 24 - 20 =$ ₹ 4 per dozen

Profit percentage $= \dfrac{\text{Profit}}{\text{CP}} \times 100 = \dfrac{4}{20} \times 100 =$ **20%**

14. CP of mobile phone $=$ ₹ 12500

SP of mobile phone $=$ ₹ 13500

Profit percentage $= ?$

Profit $=$ SP $-$ CP $= 13500 - 12500 =$ ₹ 1000

Profit percentage $= \dfrac{\text{Profit}}{\text{CP}} \times 100 = \dfrac{1000}{12500} \times 100 =$ **8%**

15. CP of motorcycle $=$ ₹ 25000

SP of motorcycle $=$ ₹ 22000

Loss % $= ?$

Loss $=$ CP $-$ SP $= 25000 - 22000 =$ ₹ 3000

Loss percentage $= \dfrac{\text{Loss}}{\text{CP}} \times 100 = \dfrac{3000}{25000} \times 100 =$ **12%**

16. CP of 20 oranges $=$ ₹ 5

CP of 1 orange $= \dfrac{5}{20} =$ ₹ $\dfrac{1}{4}$

SP of 15 oranges $=$ ₹ 6

SP of 1 orange $= \dfrac{6}{15} =$ ₹ $\dfrac{2}{5}$

We make denominator common to compare two fractions i.e., of $\dfrac{1}{4}$ and $\dfrac{2}{5}$

$$\dfrac{5,\ 8}{20}$$

$$\dfrac{5}{20} < \dfrac{8}{20}$$

Thus, $\qquad\qquad\qquad$ SP > CP

$$\text{Profit} = \text{SP} - \text{CP} = \frac{8}{20} - \frac{5}{20} = \frac{3}{20}$$

$$\text{Profit percentage} = \frac{\text{Profit}}{\text{CP}} \times 100 = \frac{3/20}{1/4} \times 100$$

$$= \frac{3}{5} \times 100 = \textbf{60\%}$$

17. CP of watch = ₹ 570
Amount spend on repairing = ₹ 30
Net CP = 570 + 30 = ₹ 600
SP of watch = ₹ 630
$\qquad$ Profit = SP − CP = 630 − 600 = ₹ 30
$\text{Profit percentage} = \dfrac{\text{Profit}}{\text{CP}} \times 100 = \dfrac{30}{600} \times 100 = \textbf{5\%}$

❑

17. $\qquad\qquad\qquad$ Simple Interest

Exercise 17

1. ₹ 115.20 **2.** ₹ 40 $\qquad$ **3.** ₹ 264 $\qquad$ **4.** ₹ 108 $\qquad$ **5.** ₹ 750

6. Principal = ₹ 1000
Time = 3 years
Rate = 11% per year
$\text{Interest (S.I.)} = \dfrac{P \times R \times T}{100} = \dfrac{1000 \times 3 \times 11}{100} = ₹\ 330$
$\qquad$ Amount = P + S.I. = 1000 + 330 = ₹ **1330**
Thus, Shikha will get back ₹ 1330.

7. Principal = ₹ 2120
$\text{Rate of interest} = 4\dfrac{1}{2}\% = \dfrac{9}{2}\% \text{ per year}$
$\text{Time} = 6 \text{ months} = \dfrac{6}{12} \text{ year} = \dfrac{1}{2} \text{ year}$
$\text{Interest} = \dfrac{P \times R \times T}{100} = \dfrac{2120 \times 9 \times 1}{100 \times 2 \times 2} = ₹\ \textbf{47.70}$
Mona will earn ₹ 47.70 as in interest.

8. Principal = ₹ 6000
$\text{Time} = 6\dfrac{1}{2} \text{ years} = \dfrac{13}{2} \text{ years}$
$\text{Rate} = 12\dfrac{1}{2}\% = \dfrac{25}{2}\% \text{ per year}$

Interest (S.I.) $= \dfrac{P \times R \times T}{100}$

Interest $= \dfrac{6000 \times 13 \times 25}{100 \times 2 \times 2} = ₹\ 4875$

Amount $= P + $ S.I. $= 6000 + 4875 = ₹\ \mathbf{10875}$

Thus, there will be ₹ 10875 in Riya's account.

9. Principal $= ₹\ 20,000$

Rate $= 15\%$ per year

Time $= 5$ years 5 months $= \left(5 + \dfrac{5}{12} \right)$ year $= \dfrac{65}{12}$ years

Interest (S.I.) $= \dfrac{P \times R \times T}{100} = \dfrac{20000 \times 15 \times 65}{100 \times 12} = ₹\ 16250$

Amount $= P + $ S.I. $= 20000 + 16250 = ₹\ \mathbf{36250}$

Priya will get back ₹ 36250 from the company.

10. Principal $= ₹\ 4500$

Rate $= 1\dfrac{1}{4}\%$ per month $= \dfrac{5}{4}\%$ per month

Time $= 1\dfrac{1}{4}$ years $= \dfrac{5}{4} \times 12$ months $= 15$ months

S.I. $= \dfrac{P \times R \times T}{100} = \dfrac{4500 \times 5 \times 15}{100 \times 4} = \dfrac{3375}{4} = ₹\ \mathbf{843.75}$

11. Principal $= ₹\ 1200$

Rate $= 8\%$ per year

Time $= 8$ months $= \dfrac{8}{12}$ year

S.I. $= \dfrac{P \times R \times T}{100} = \dfrac{1200 \times 8 \times 8}{100 \times 12} = ₹\ 64$

Amount $= P + $ S.I. $= 1200 + 64 = ₹\ \mathbf{1264}$

12. For Rahul, Principal $= ₹\ 4000$

Time $= 3$ years

Rate $= 14\%$ per year

S.I. $= \dfrac{P \times R \times T}{100} = \dfrac{4000 \times 3 \times 14}{100} = ₹\ \mathbf{1680}$

For Vipin, Principal $= ₹\ 3500$

Time $= 2\dfrac{1}{2}$ years $= \dfrac{5}{2}$ years

$R = 18\%$ per year

S.I. $= \dfrac{3500 \times 5 \times 18}{100 \times 2} = ₹\ \mathbf{1575}$

Thus, Rahul will get more interest.

13. Principal = ₹ 4500

Time $= 1\dfrac{1}{2}$ years $= \dfrac{3}{2}$ years

Rate of interest $= 7\dfrac{1}{2}\% = \dfrac{15}{2}\%$ per year

Interest (S.I.) $= \dfrac{P \times R \times T}{100} = \dfrac{4500 \times 3 \times 15}{100 \times 2 \times 2} = ₹\ 506.25$

Amount $= P + $ S.I. $= 4500 + 506.25 = ₹\ \textbf{5006.25}$

Abdul will receive ₹ 5006.25.

14. Principal = ₹ 5000

Rate $= 10\%$ per year

$T_1 = 1$ year, $T_2 = 2$ years, $T_3 = 3$ years

For one year,

S.I. $= \dfrac{P \times R \times T_1}{100} = \dfrac{5000 \times 10 \times 1}{100} = \dfrac{5000 \times 10 \times 1}{1000} = ₹\ 500$

Amount $= P + $ S.I. $= 5000 + 500 = ₹\ \textbf{5500}$

For two years,

$P = ₹\ 5000$

$R = 10\%$ per year

$T_2 = 2$ years

S.I. $= \dfrac{P \times R \times T_2}{100} = \dfrac{5000 \times 10 \times 2}{100} = ₹\ 1000$

Amount $= P + $ S.I. $= 5000 + 1000 = ₹\ \textbf{6000}$

For three years,

$P = ₹\ 5000$

$R = 10\%$ per year

$T_3 = 3$ years

S.I. $= \dfrac{P \times R \times T_3}{100}$

S.I. $= \dfrac{5000 \times 10 \times 3}{100} = ₹\ 1500$

Amount $= P + $ S.I. $= 5000 + 1500 = ₹\ \textbf{6500}$

15. ₹ 5500, ₹ 6000 and ₹ 6500 will be Zeba's account at the end of 1 year, 2 years and 3 years respectively.

Principal = ₹ 500

Rate $= 15\%$ per year

Time $= 3$ years 4 months $= \left(3 + \dfrac{4}{12}\right)$ years $= 3 + \dfrac{1}{3} = \dfrac{10}{3}$ years

Interest (S.I.) $= \dfrac{P \times R \times T}{100} = \dfrac{500 \times 15 \times 10}{100 \times 3} = ₹\ 250$

Amount = P + S.I. = 500 + 250 = ₹ 750

But the man paid ₹ 450 and radio for the balance amount.

Cost of ratio = 750 − 450 = ₹ **300**

❏

Unit-VI : Geometry and Patterns

18. Line

Exercise 18.1

1. (i) line (ii) cannot (iii) two (iv) line segment (v) plane
2. A line segment has a definite length; A ray has only one end-point; A line has no end-point; A face of a wall represents a part of a plane; A line cannot be drawn on a paper.
3. (i) $\overleftrightarrow{AB}$ (ii) $\overline{CD}$ (iii) $\overrightarrow{EF}$

Exercise 18.2

Do it yourself.

❏

19. Angle

Exercise 19.1

1. (i) *Y; YX, YZ* (ii) *M; LM, NM* (iii) *O; OA, OB* (iv) *Q; QR, QP*
2. (i) and (iii)
3. ∠*AOB*, ∠*AOC*, ∠*AOD*, ∠*BOC*, ∠*BOD*, ∠*DOA*
4. (i) ∠*RST* (ii) ∠*ABC* (iii) ∠*XYZ* (iv) ∠*POQ*
5. (i) 3 (ii) 6 (iii) 10
7. (i) right (ii) acute (iii) obtuse (iv) obtuse (v) acute.
8. (i) ∠*AOB*, ∠*BOC* (ii) ∠*POQ*, ∠*QOR* (iii) ∠*AOB*, ∠*BOC*; ∠*COD*, ∠*DOA*;
9. (i) ∠*POS*, ∠*QOR*; ∠*POQ*, ∠*ROS* (ii) ∠*AOB*, ∠*DOE*; ∠*BOC*, ∠*EOF*; ∠*COD*, ∠*AOF*, (iii) ∠*JNK*, ∠*LNM*; ∠*KNL*, ∠*JNM*
10. (i) 70° (ii) 50° (iii) 36° (iv) 13° (v) 1°.
11. (i) 150° (ii) 130° (iii) 15° (iv) 90° (v) 1°
12. (i) 70° (ii) 60° (iii) 57°

Exercise 19.2

Do it yourself.

1. (a), (b), (c), (d), (e)
2. (a) 180° (b) 90° (c) 270° (d) 45°
4. (a) 60° (b) (i) 180° (ii) 300° (iii) 120°

❏

20. Triangle

Exercise 20.1

1. (i) obtuse-angled triangle (ii) right-angled triangle
   (iii) acute-angled triangle
2. (i) scalene (ii) isosceles (iii) equilateral
3. (i) right angled, scalene (ii) acute-angled, equilateral
   (iii) acute-angled, isosceles (iv) acute-angled, scalene
   (v) acute-angled, isosceles (vi) right-angled, scalene
4. (i) scalene (ii) isosceles (iii) equilateral (iv) isosceles
5. (i) 78° (ii) 15° (iii) 32°.
6. (i) 50° (ii) 45° each (iii) 105° (iv) 60° (v) 45°
7. (i) Not possible (ii) Possible (iii) Not possible

Exercise 20.2

Do it yourself.

❏

21. Quadrilateral

Exercise 21.1

1. 4 sides : PQ, QR, RS, SP; 4 vertices; P, Q, R, S; 4 angles;
   $\angle PQR$, $\angle QRS$, $\angle RSP$, $\angle SPQ$; 2 diagonals: PR, QS
2. 170°   3. 90°
4. 50°   5. (i) T (ii) F (iii) T (iv) T (v) F.

❏

22. Circle

Exercise 22.1

1. (i) diameter (ii) arc (iii) centre (iv) half (v) chord (vi) centre (vii) $\dfrac{22}{7}$

   (viii) equal (ix) two (x) diameter

3. (i) 10 cm (ii) 15 cm (iii) 9 cm (iv) 16.4 cm

4. (i) 4 cm (ii) $5\frac{1}{4}$ cm (iii) 5.5 cm (iv) 2.33 cm

5. (i) 110 cm (ii) 176 cm (iii) 154 cm (iv) 198 cm

6. (i) 21 cm (ii) 7 cm (iii) 42 cm (iv) 17.5 cm

9. yes

10. (i) T (ii) F (iii) F (iv) T (v) F

11. (i) *CA*, *CB*, *CD* (ii) *EF*, *EG*, *AB* (iii) *AB* (iv) *AEFB*, *AGDB* (v) 2

❏

23. Symmetry and Pattern

Exercise 23.1

3. Football-Sphere, Pipe-Cylinder, Dice-Cube, Matchbox- Cuboid, Birthday Cap-Cone

4. 6,12

Exercise 23.2

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

3. (a) (ii), (b) (iv); (c) (i); (d) (iii)

4. Rectangle   **5.** yes

Exercise 23.3

1.   **2.**

3.

4. (c)

5. turning by 45° each time,

6. turning by 45° each time,

7. turning by 90° each time,

8. to 24. Do yourself

❏

Unit-VII : Mensuration

24. Area

1. 14 sq cm (approximately)   **2.** 13 sq cm

3. 275 sq m   **4.** 81 sq m   **5.** 169 sq cm

6. 36 sq m   **7.** 2.25 sq m   **8.** 12.96 sq m

9. 180 sq cm   **10.** 550 sq cm   **11.** 8450 sq m

12. 0.5 sq m   **13.** 13.05 sq m   **14.** second

15. 1350   **16.** 31500

17. Length of courtyard $= 40\,m$

Breadth $= 25\,m$

Area $=$ Length $\times$ Breadth $= 40 \times 25 = 1000\,m^2$

Rate of tilling $=$ ₹ 50 per sq.m

Cost of tilling $= 1000 \times 50 =$ ₹ **50000**

18. Length of carpet $= 5\,m$

Breadth of carpet $= 3.5\,m$

Area $=$ Length $\times$ Breadth $= 5 \times 3.5 = 17.5\,m^2$

Cost of carpet $= 17.5 \times 100 =$ ₹ **1750**

19. Length of garden $= 165\,m$

Breadth of garden $= 56\,m$

Area of garden $=$ Length $\times$ Breadth $= 165 \times 56 =$ **9240 m^2**

20. Side of square field $= 125\,m$

Its Area $=$ side$^2 = 125 \times 125 = 15625\,m^2$

Cost of planting grass $= 15625 \times$ ₹ $2 =$ ₹ **31250**

❏

25. Volume

1. 16 cm^3 **2.** 18 cm^3 **3.** 24 cm^3 **4.** 2000 cm^3

5. 3375 cm^3 **6.** 12 m^3

7. Volume of tea packet $=$ length $\times$ breadth $\times$ height

$$= 6 \times 4 \times 10 = \textbf{240 cm}^3$$

8. Length of cuboid $= 1\,m = 100\,cm$
Breadth $= 50\,cm$
Height $= 25\,cm$
Volume of cuboid $=$ length $\times$ breadth $\times$ height
$$= 100 \times 50 \times 25 = \mathbf{125000\,cm^3}$$

9. Dimensions of cuboidal tin $= 20\,cm \times 8\,cm \times 50\,cm$
Volume of cuboid $=$ Volume of oil
$$= \text{length} \times \text{breadth} \times \text{height}$$
$$= 20 \times 8 \times 50 = \mathbf{8000\,cm^3}$$

10. Volume of a box $=$ length $\times$ breadth $\times$ height
$$= 40 \times 25 \times 20 = \mathbf{20000\,cm^3}$$

11. Edge of box $= 9\,cm$
Volume of box $=$ edge $\times$ edge $\times$ edge
$$= 9 \times 9 \times 9 = \mathbf{729\,cm^3}$$

12. Length of hall $= 22\,m$
Breadth of hall $= 14\,m$
Height of hall $= 4.5\,m$
Volume of hall $=$ length $\times$ breadth $\times$ height
$$= 22 \times 14 \times 4.5 = \mathbf{1386\,m^3}$$

13. Length of glass-box $= 50\,cm$
Breadth of a glass-box $= 25\,cm$
Height of glass-box $= 20\,cm$
Amount of water in glass-box $=$ its volume
Volume of glass-box $=$ length $\times$ breadth $\times$ height
$$= 50 \times 25 \times 20 = \mathbf{25000\,cm^3}$$

14. Length, breadth and height of wooden block
$$= 5.5\,cm,\ 4\,cm,\ 2.5\,cm$$
Volume of wooden block $=$ length $\times$ breadth $\times$ height
$$= 5.5 \times 4 \times 2.5 = \mathbf{55\,cm^3}$$

15. Length, breadth and height of brick $= 21\,cm,\ 8\,cm,\ 6\,cm$
Volume of brick $=$ length $\times$ breadth $\times$ height
$$= 21 \times 8 \times 6 = \mathbf{1008\,cm^3}$$

16. Edge of cube $= 2.3\,cm$
Volume of cube $=$ edge $\times$ edge $\times$ edge
$$= 2.3 \times 2.3 \times 2.3 = \mathbf{12.167\,cm^3}$$

17. Length, breadth and height of brick $= 25\,cm,\ 10\,cm$ and $7.5\,cm$
Volume of brick $=$ length $\times$ breadth $\times$ height
$$= 25 \times 10 \times 7.5 = 1875\,cm^3$$

Length, breadth and height of wall

$$= 5\,m,\ 2.5\ m,\ 37.5\ cm$$
$$= 500\,cm,\ 250\ cm\ and\ 37.5\ cm$$

Volume of wall = length $\times$ breadth $\times$ height = $4687500\,cm^3$

Number of bricks required = $\dfrac{4687500}{1875}$ = **2500**

18. Length, breadth and height of cuboid = 8 cm, 5 cm and 5 cm

Volume of cuboid = length $\times$ breadth $\times$ height = $8 \times 5 \times 5$

Volume of cuboid = $200\,cm^3$

Now, edge of cube = 6 cm

Volume of cube = edge $\times$ edge $\times$ edge = $6 \times 6 \times 6$

Volume of cube = $216\,cm^3$

Thus, volume of **cube is greater.**

19. Length, breadth and height of first ice cream block = 3 cm, 4 cm and 5 cm

Its volume = length $\times$ breadth $\times$ height = $3 \times 4 \times 5 = 60\,cm^3$

Volume of another ice-cream block = $4 \times 4 \times 4 = 64\,cm^3$

Thus, second block of ice-cream has greater volume.

❑

26. Circle Graph and Bar Graph

Warm Up

1. Basketball

2. $\dfrac{1}{2}$

3. (a) $\dfrac{1}{8}$ (b) $\dfrac{1}{8}$ (c) $\dfrac{1}{4}$

4. (a) 10 (b) 5 (c) 5 (d) 20

Exercise 26.1

1. $\dfrac{7}{20}, \dfrac{9}{20}, \dfrac{3}{20}, \dfrac{1}{20}$ **2.** $\dfrac{1}{4}, \dfrac{3}{8}, \dfrac{1}{4}, \dfrac{1}{8}$ **3.** $\dfrac{1}{3}, \dfrac{1}{2}, \dfrac{1}{6}$

Exercise 26.2

1. (a) Tue (b) Sun (c) 50 L (d) 200 L (e) 900 L

2. (a) 6 pm (b) 6 am (c) 100 (d) 2150 (e) 6 pm

3. (a) 100 (b) Nitin (c) Mamta (d) Tina and Anmol (e) Nitin, 50

❑

Half Yearly Model Test Paper

1. (i) (c) (ii) (b) (iii) (d) (iv) (b)
2. (i) T (ii) F (iii) T (iv) F (v) T
3. (i) 78 (ii) 10 (iii) ones, tenths (iv) 100 (v) mercury
4. No. of oranges bought by the fruit-seller = 4,50,769
   No. of rotten oranges = 337
   Remaining oranges = 4,50,769 − 337 = 4,50,432
   Required baskets for packed oranges = $\dfrac{4,50,432}{288}$
   = 1564 baskets
5. Total votes were polled in election = 50175238
   Two candidates were got the votes = 9238238 + 20923575
   = 30161813
   Third candidate were got the votes = 50175238 − 30161813
   = 2,00,13,425
6. To find the minimum distance after which they step together, we take LCM of 50, 60 and 55.

2	50, 60, 55
2	25, 30, 55
3	25, 15, 55
5	25, 5, 55
5	5, 1, 11
11	1, 1, 11
	1, 1, 1

   LCM of 50, 60 and 55 = 2 × 2 × 3 × 5 × 5 × 11 = 3300 cm = **33 m**
   Thus, three persons will step again together after 33 m.
7. To find the required number, we take HCF of (208 − 8) and (358 − 8) i.e., 200 and 350.
   = HCF of 200 and 350

2	200, 350
5	100, 175
5	20, 35
	4, 7

   HCF of 200 and 350 = 2 × 5 × 5 = **50**

8. (i) $2\dfrac{3}{4}$ (ii) $\dfrac{2}{5}$ (iii) 32

9. (i) $\dfrac{18}{35}$ (ii) 3 (iii) $22\dfrac{2}{3}$

10. Cost of 1 m of cloth = ₹ 48.50

Cost of 1.70 m of cloth = 48.50×1.70 = ₹ **82.45**

Thus, cost of 1.70 m of cloth is ₹ 82.45.

11. (i) $\dfrac{15}{10}$ (ii) $\dfrac{4023}{10000}$ (iii) $3\dfrac{75}{100}$ (iv) $23\dfrac{965}{1000}$

12. Distance covered by bus = 37.4 km

Distance covered by scooter = 4.150 km

Total distance covered = 42 km

$$
\begin{array}{r}
37.400 \\
+4.150 \\
\hline
41.550 \\
\hline
\end{array}
\qquad
\begin{array}{r}
42.000 \\
-41.550 \\
\hline
0.450 \\
\hline
\end{array}
$$

∴ Distance covered on foot

$$= 42 - (37.4 + 4.150) = 42 - 41.55$$

$$= \textbf{0.45 km}$$

Parul covered 0.45 km on foot.

13. (i) 45 m (ii) 40 g

14. (i) $2\dfrac{29}{32}$ (ii) $5\dfrac{1}{6}$

15. (i) 4 crore (ii) 45 million

16. Difference of maximum and minimum temperature

$$= 40°C - 25°C = 15°C$$

$$15°C \text{ to } °F = \left(15 \times \dfrac{9}{5} + 32\right)°F$$

$$= 27 + 32 = 59°F$$

17. To find the measure of single container of maximum capacity, we take HCF of 136, 170 and 119.

$$
\begin{array}{c|l}
17 & 136,\ 170,\ 119 \\
\hline
 & \ \ 8,\ \ \ 10,\ \ \ \ 7
\end{array}
$$

HCF of 136, 170 and 119 = 17

Thus, capacity of the greatest container is 17 L.

❏
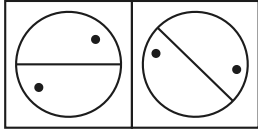
Annual Model Test Paper

1. (i) (a) (ii) (c) (iii) (b)

2. (i) principal (ii) equal (iii) geometrical (iv) length; breadth

3. (i) $\dfrac{16}{25} = \dfrac{16}{25} \times 100\% = 16 \times 4\% = 64\%$

(ii), (iii),(iv), (v), (vi), (vii), (viii) Do it yourself.

4. (i) CP = ₹ 700, SP = ₹ 800

SP > CP $\Rightarrow$ Profit = SP − CP = 800 − 700 = ₹ 100

(ii) Do it yourself.

5. Do yourself

6. (i) $\angle$RST, (ii) $\angle$ABC, (iii) $\angle$XYZ (iv) $\angle$POQ

7. (i) Supplementary angle of $30° = 180° - 30° = 150°$

(ii) 130°　　(iii) 15°　　(iv) 90°　　(v) 1°

8. (i) Complementary angle of $20° = 90° - 20° = 70°$

(ii) 50°　　(iii) 36°　　(iv) 13°　　(v) 1°

9. Average score of team $A = \dfrac{279}{9} = 31$

Average score of team $B = \dfrac{224}{7} = 32$

Team B performed better average.

10. Air fare from Delhi to Mumbai = ₹ 3200 + 10% tax

$$= ₹\, 3200 + \dfrac{10}{100} \times 3200$$

$$= 3200 + 320 = ₹\, 3520$$

11. Circumference of circle $= \pi \times$ diameter $= \dfrac{22}{7} \times 49 = 154$ cm

12. Area of a carpet = 5 m × 23.5 m = 117.5 m^2

Cost of a carpet at ₹ 100 per sq.m = 117.5 × 100 = ₹ 11750

13. No. of tiles can be fixed on floor $= \dfrac{\text{Area of floor}}{\text{Area of square tile}}$

$$= \dfrac{4.5 \text{ m} \times 3 \text{ m}}{10 \text{ cm} \times 10 \text{ cm}}$$

$$= \dfrac{4.5 \times 100 \text{ cm} \times 3 \times 100 \text{ cm}}{10 \times 10}$$

$$= 1350$$

14. Length, breadth and height of brick = 25 cm, 10 cm and 7.5 cm

Volume of brick = length × breadth × height

$$= 25 \times 10 \times 7.5 = 1875 \text{ cm}^3$$

Length, breadth and height of wall

$$= 5 \text{ m}, 2.5 \text{ m}, 37.5 \text{ cm}$$

$$= 500 \text{ cm}, 250 \text{ cm and } 37.5 \text{ cm}$$

Volume of wall = length $\times$ breadth $\times$ height
$$= 4687500 \, cm^3$$

Number of bricks required $= \dfrac{4687500}{1875} = \mathbf{2500}$

15. (i)

(ii)

16. Length of courtyard $= 40 \, m$

Breadth $= 25 \, m$

Area = Length $\times$ Breadth $= 40 \times 25 = 1000 \, m^2$

Rate of tilling $= ₹ \, 50$ per sq.m

Cost of tilling $= 1000 \times 50 = ₹ \, \mathbf{50000}$

❏