CHAPTER

# 4

# Length, Weight, Capacity, Time and Money

**Learning objectives**

**5.1** Length **5.2** Weight **5.3** Capacity **5.4** Time
**5.5** Calendar **5.6** Money

## 5.1 LENGTH

Length is the measurement of something from one end to other end.

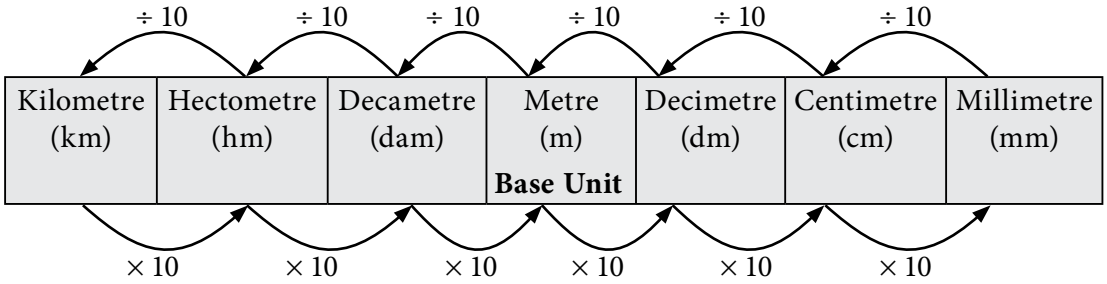
**Note :**

Different devices are used to measure different lengths.

### Units of Measuring Length

- The most common units of lengths are kilometre (km), metre (m) and centimetre (cm).
- The kilometre is larger unit than metre. The metre is larger unit than centimetre.

### Metric System of Length




### Conversion of Units

- To convert metre (m) into centimetre (cm), we multiply the number by 100.
  For example :
  8 m = 8 × 100 cm = 800 cm
- To convert centimetre (cm) into decimetre (dm), we divide the number by 10.
  For example :
  400 cm = (400 ÷ 10) dm = 40 dm
- To convert kilometre (km) into hectometre (hm), we multiply the number by 10.
  For example :
  4 km = 4 × 10 hm = 40 hm
- To convert metre (m) into kilometre (km), we divide the number by 1000.
  For example :
  6000 m = (6000 ÷ 1000) km = 6 km

***Olympiad Bite***

- To convert the larger unit into smaller unit, we multiply.
- To convert the smaller unit into larger unit, we divide.

### Addition and Subtraction of Lengths

We can add or subtract measures of lengths, as we add or subtract ordinary numbers.

For example :

1. Add 215 m 35 cm and 120 m 59 cm.

| | m | cm | |
|---|---|---|---|
| | | ① | |
| | 215 | 35 | |
| + | 120 | 59 | |
| | 335 | 94 | = 335 m 94 cm |

2. Subtract 20 km 315 m from 52 km 525 m.

| | km | m | |
|---|---|---|---|
| | 52 | 525 | |
| − | 20 | 315 | |
| | 32 | 210 | = 32 km 210 m |

## 5.2 WEIGHT

Weight means how much heavy something or someone is.

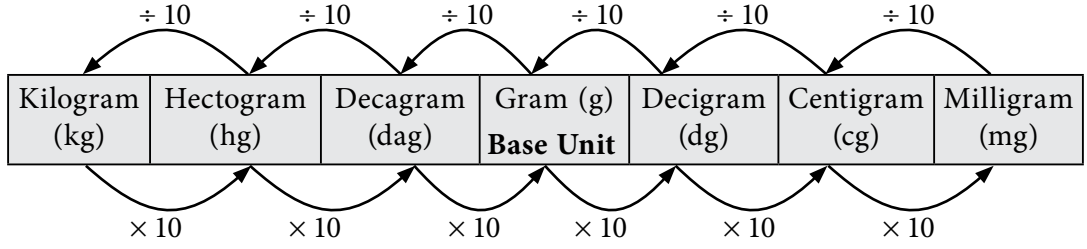
### Units of Measuring Weight

The most commonly used units of weight are kilogram (kg) and gram (g).

For example :

- Weight of basket of fruits is measured in kilograms.
- Weight of a pen is measured in grams.

### Metric System of Weight




### Conversion of Units

- To convert kilogram (kg) into gram (g), we multiply the number by 1000.

  For example :

  5 kg = 5 × 1000 g = 5000 g
- To convert gram (g) into decagram (dag), we divide the number by 10.

  For example :

  80 g = (80 ÷ 10) dag = 8 dag

### Addition and Subtraction of Weights

We can add or subtract measures of weights, as we add or subtract ordinary numbers.

For example :

- Add 12 kg 565 g and 27 kg 302 g.

| | kg | g | |
|---|---|---|---|
| | 12 | 565 | |
| + | 27 | 302 | |
| | 39 | 867 | = 39 kg 867 g |

- Subtract 40 kg 630 g from 62 kg 460 g.

| | kg | g | |
|---|---|---|---|
| | ⑫ | ⑭ | |
| | 62 | 460 | |
| − | 40 | 630 | |
| | 21 | 830 | = 21 kg 830 g |

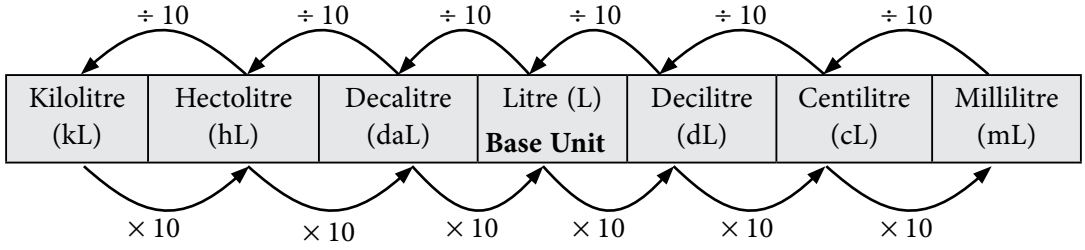
## 5.3 CAPACITY

The quantity of liquid which a container can hold is called its capacity.

### Units of Measuring Capacity

The most commonly used units of capacity are litres (L) and millilitres (mL) .

### Metric system of Capacity




### Conversion of Units

- To convert litre (L) into millilitre (mL), we multiply the number by 1000.

  For example : 8 litres = 8 × 1000 mL = 8000 mL

- To convert millilitre (mL) into centilitre (cL), we divide the number by 10.

  For example : 70 mL = (70 ÷ 10) cL = 7 cL

### Addition and Subtraction of Capacity

We can add or subtract capacity, as we add or subtract ordinary numbers.

For example :

- Add 148 L 218 mL and 16 L 755 mL.

| | L | mL | |
|---|---|---|---|
| | ① | ① | |
| | 148 | 218 | |
| + | 16 | 755 | |
| | 164 | 973 | = 164 L 973 mL |

➤ Subtract 56 L 734 mL from 75 L 125 mL.

| | L | mL |
|---|---|---|
| | ⑥⑭ | ⑩⑫ |
| | ~~7~~5 | ~~1~~25 |
| − | 56 | 734 |
| | 18 | 391 |

= 18 L 391 mL

## SELF TEST - 1

**1.** Solve :

44 km 29 m + 13 km 500 m – 9 km 200 m

(A) 48 km 329 m (B) 46 km 315 m

(C) 48 km 521 m (D) 45 km 52 m

**2.** Karan weighs 56 kg 250 g and his brother weighs 45 kg 850 g. Find the total weight of both of them.

(A) 101 kg 200 g (B) 85 kg 950 g

(C) 102 kg 100 g (D) 98 kg 100 g

**3.** Compare and fill in the box.

3 kg 500g + 1000 mg ☐ 4 kg 200 g + 2000 mg

(A) > (B) <

(C) =

(D) Can't be determined

**4.** Soham have 5 m 30 cm of cloth. He only needs 3 m 70 cm of cloth to make a curtain. How much cloth will be left with him after making the curtain?

(A) 1 m 35 cm (B) 180 cm

(C) 130 cm (D) 1 m 60 cm

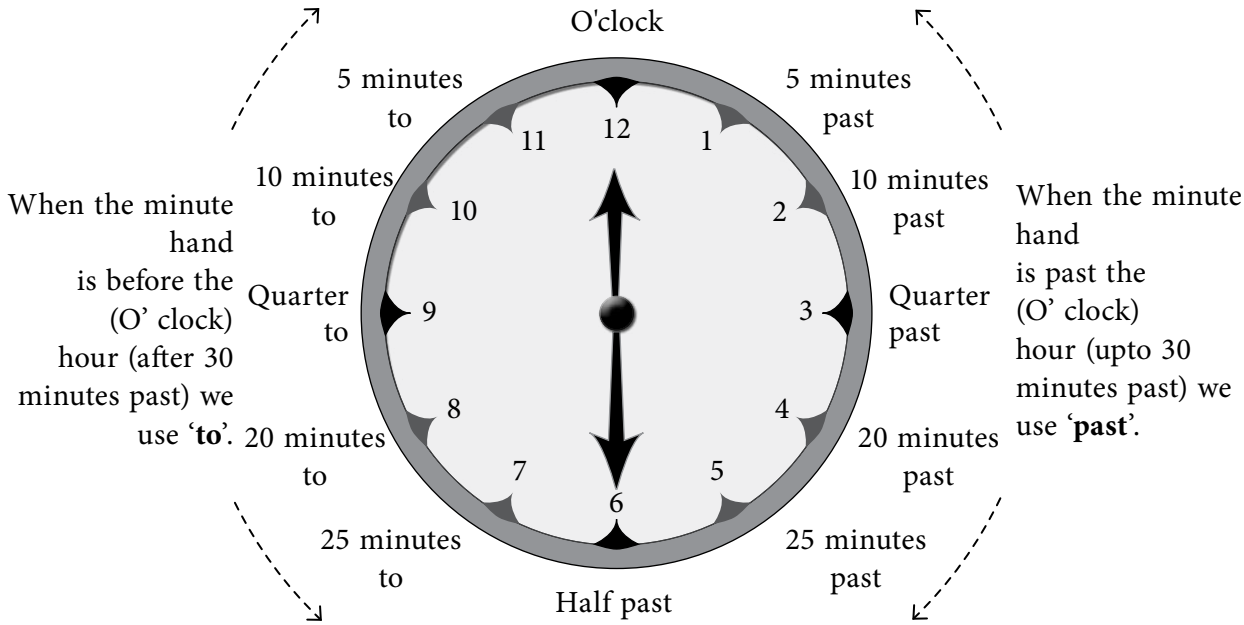
**5.** Find the value of

28 L 325 mL + 15 L 120 mL – 18 L 210 mL.

(A) 25 L 633 mL (B) 25 L 235 mL

(C) 28 L 225 mL (D) 20 L 315 mL

### 5.4 TIME




### A.M. and P.M.

There are 24 hours in a day but a clock shows only 12 hours time. So when we read 6 O' clock on the clock, we don't know whether its morning time or evening time.

Therefore, we use a.m. and p.m. to distinguish different parts of the day.

**A.M.** is short form of ante meridiem which means before midday.

**P.M.** is short form of post meridiem which means after midday.

12 O'clock in the night is midnight.

12 O'clock in the day is midday also called noon.

Midnight $\xrightarrow{\textbf{A.M.}}$ Midday $\xrightarrow{\textbf{P.M.}}$ Midnight

## Conversion of Time

### Converting bigger units into smaller units

- Convert : 5 days into hours.
  Since, 1 day = 24 hours
  Therefore, 5 days = (5 × 24) hours = 120 hours
- Convert : 3 hours into minutes.
  Since, 1 hour = 60 minutes
  Therefore, 3 hours = (3 × 60) minutes = 180 minutes
- Convert : 7 minutes into seconds.
  Since, 1 minute = 60 seconds
  Therefore, 7 minutes = (7 × 60) seconds = 420 seconds

**Olympiad Bite**

- 1 Day = 24 hours
- 1 hour = 60 minutes
- 1 minute = 60 seconds

### Converting smaller units into bigger units

- Convert : 125 hours into days.

$$24\overline{)125}\,(5 \leftarrow \text{Number of days}$$
$$-120$$
$$5 \leftarrow \text{Number of hours}$$

  ∴ 125 hours = 5 days 5 hours

- Convert : 275 minutes into hours.

$$60\overline{)275}\,(4 \leftarrow \text{Number of hours}$$
$$-240$$
$$35 \leftarrow \text{Number of minutes}$$

  ∴ 275 minutes = 4 hours 35 minutes

- Convert : 563 seconds into minutes.

$$60\overline{)563}\,(9 \leftarrow \text{Number of minutes}$$
$$-540$$
$$23 \leftarrow \text{Number of seconds}$$

  ∴ 563 seconds = 9 minutes 23 seconds

## 24 Hour Clock Time

The 24 hour clock time is another way of telling time in which the time begins from midnight to next midnight. It does not use a.m. or p.m.

A time in this format is written as
**Hours** : **Minutes**

For example :

- 5 a.m. is written as 05:00
  ↙ Hours ↘ Minutes
- 7 p.m. is written as 19:00

**Olympiad Bite**

- 24:00 and 00:00 means same time, *i.e.*, midnight.
- Duration of an activity means time that had passed during the activity.

## 5.5 CALENDAR

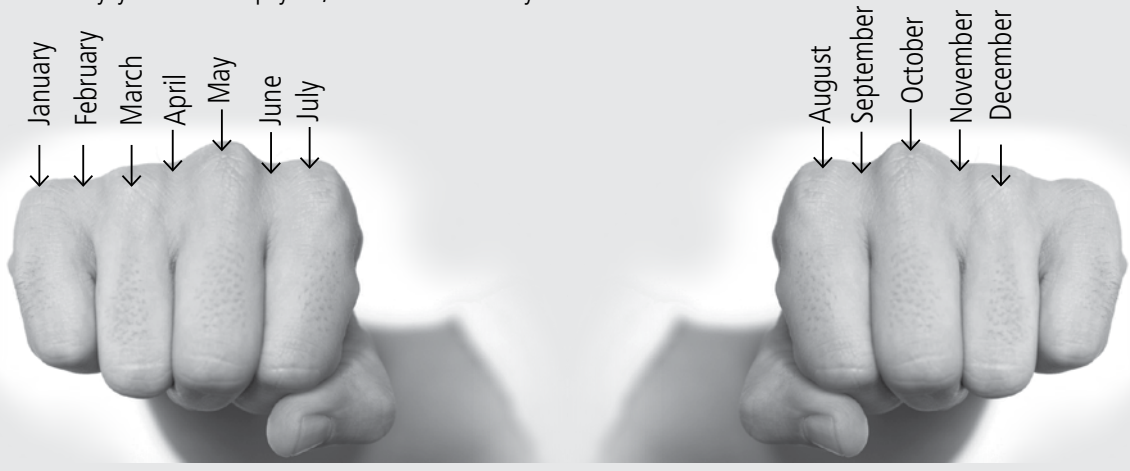
A calendar shows us the days and the months of a year.

From calendar, we observe that

- There are 12 months in a year.
- There are 7 days in a week.
- There are 365 days in an ordinary (non-leap) year and 366 days in a leap year.

### *Olympiad Bite*

- A century year is a leap year, if it is divisible by 400.




**Remember**

Knuckle bumps = 31 days

Knuckle gaps = 30 days (except February)

## 5.6 MONEY

### Units of Money

In India money is calculated in Rupees and Paise.

When the amount has rupees and paise both, we separate the rupees and paise by putting a dot between them.

The numeral to the right of the dot is paise and to the left is rupees. Paise is written in two digits.

For example :

- ₹ 18 and 56 paise is written as ₹ 18.56
- ₹ 20 and 5 paise is written as ₹ 20.05.

### Operations on Money

### Addition and Subtraction of Money

For example :

- Add ₹ 105.25 and ₹ 25.20

**Step 1 :** Arrange the amounts in specific columns.

**Step 2 :** Perform ordinary addition.

**Step 3 :** Place the decimal points in the sum.

| | Rupees | | Paise | |
|---|---|---|---|---|
| | ① | | | |
| | 105 | . | 25 | |
| + | 25 | . | 20 | |
| | 130 | . | 45 | = ₹ 130.45 |

➤ Subtract ₹ 28.50 from ₹ 95.72

**Step 1 :** Arrange the amounts in specific columns.

**Step 2 :** Perform ordinary subtraction.

**Step 3 :** Place the decimal point in the subtraction.

| Rupees | | Paise | |
|---|---|---|---|
| ⑧⑮ | | | |
| ~~95~~ | . | 72 | |
| − 28 | . | 50 | |
| 67 | . | 22 | = ₹ 67.22 |

## Multiplication and Division of Money

Multiplication and division of money is similar to multiplication and division of ordinary number.

Let us learn with the help of examples.

For example :

➤ Multiply ₹ 80.25 by 5

| Rupees | | Paise | |
|---|---|---|---|
| ① | | ② | |
| 80 | . | 25 | |
| × | | 5 | |
| 401 | . | 25 | = ₹ 401.25 |

➤ Divide ₹ 238.20 by 30

$$
\begin{array}{r}
7.94 \\
30\overline{)238.20} \\
-210\downarrow \\
\hline
282 \\
-270\downarrow \\
\hline
120 \\
-\ 120 \\
\hline
0
\end{array}
$$

So, ₹ 238.20 ÷ 30 = ₹ 7.94

### Olympiad Bite

Put a dot after two digits from the right to separate the rupees & paise in product & quotient.

## SELF TEST - 2

**1.** What date falls on 10th day after 15th August?

(A) 24th August (B) 25th August

(C) 26th August (D) 28th August

**2.** 422 hours = _____ days _____ hours.

(A) 18, 15 (B) 14, 17

(C) 17, 18 (D) 17, 14

**3.** 50 minutes after the time shown in the given clock is _____.


(A) 6:35

(B) 6:25

(C) 7:15

(D) 6:15

**4.** Shivani has ₹ 540. How many caps of ₹ 12 each can she buy?

(A) 35 (B) 40

(C) 45 (D) 55

**5.** Select the CORRECT match.

(A) ₹ 35.60 = 35600 p

(B) ₹ 20.90 = 2090 p

(C) ₹ 142.50 = 1420 p

(D) ₹ 31.61 = 3116 p

# EXERCISE

**1.** Yashika works 8 hours a day. If she earns ₹ 15 an hour and works for 2 weeks everyday in the week, then how much does she earn?

(A) ₹ 1800 (B) ₹ 1520

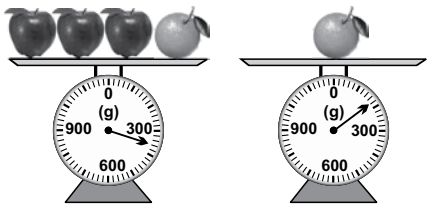
(C) ₹ 1680 (D) ₹ 1230

**2.** Aaryan bought 30 kg 500 g of sugar from shop *P* and 20 kg 750 g of sugar from shop *Q*. How much more sugar did he buy from shop *P* than shop *Q*?

(A) 9 kg 750 g (B) 9 kg 250 g

(C) 11 kg 750 g (D) 10 kg 150 g

**3.** What is the weight of each apple?




(A) 40 g (B) 60 g

(C) 240 g (D) 90 g

**4.** Compare and fill in the box.

10 g 45 mg + 12 g 105 mg ☐ 20 g 215 mg + 18 g 315 mg

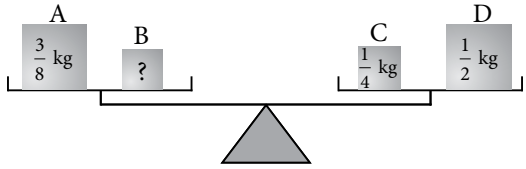
(A) >

(B) <

(C) =

(D) Can't be determined

**5.** What is the weight of box B?




(A) $\frac{2}{3}$ kg (B) $\frac{3}{8}$ kg

(C) $\frac{1}{6}$ kg (D) $\frac{3}{2}$ kg

**6.** Varun bought the given items at a sale. He went to the sale with a ₹ 2000 note. How much money is left with him now?


₹ 525 ₹ 405

(A) ₹ 1200 (B) ₹ 1500

(C) ₹ 1070 (D) ₹ 950

**7.** Raghav travelled 18 kilometres in two days. On the first day, he covered $5\frac{1}{2}$ kilometres. How much distance did he covered on the second day ?

(A) $10\frac{1}{2}$ kilometres (B) $12\frac{1}{2}$ kilometres

(C) $15\frac{1}{2}$ kilometres (D) $9\frac{1}{2}$ kilometres

**8.** Ashina used 3 kg 750 g flour to bake 15 cakes. If each cake required equal amount of flour, then how much flour did she use for one cake?

(A) 250 g (B) 180 g

(C) 270 g (D) 320 g

**9.** Select the CORRECT match.

(A) 450 mm = 4500 cm

(B) 2 m 10 cm = 210 cm

(C) 24570 m = 2457 km

(D) 5 dm = 500 cm

**10.** Puneet wanted to take the bus at 6:25 p.m. He arrived at the bus stop 40 minutes before 6:25 p.m. At what time did Puneet arrive the bus stop?

(A) 5:35 p.m. (B) 5:45 p.m.

(C) 4:45 p.m. (D) 5:25 p.m.

**11.** The capacity of a small container is 400 mL and the capacity of a big container is 1500 mL. If Sumit uses 9 small containers and 2 big containers of water to fill up an empty tank, then what is the capacity of the tank?

(A) 5 L 200 mL (B) 6 L 600 mL

(C) 4 L 500 mL (D) 6 L 60 mL

**12.** If a kettle can hold 3 L of water, then how many litres of water 20 such kettles can hold?

(A) 85 L (B) 80 L

(C) 60 L (D) 72 L

**13.** At a local fair in Delhi, Yogesh had ₹ 1800 to spend. He spent ₹ 320 on games, ₹ 240 on food and ₹ 800 on shopping. How much money is left with him?

(A) ₹ 110 (B) ₹ 220

(C) ₹ 440 (D) ₹ 340

**14.** Abhinav went for a walk and returned home at 7:20 a.m. If it took him 1 hour and 45 minutes, then at what time did he start walk ?

(A) 5:40 a.m. (B) 4:30 a.m.

(C) 5:35 a.m. (D) 6:05 a.m.

**15.** Ankit filled 5 L 700 mL petrol in his car on 1st March, 3 L 250 mL on 9th March and 5 L 150 mL on 15th March. How much total quantity of petrol did he fill in his car?

(A) 8 L 250 mL (B) 14 L 100 mL

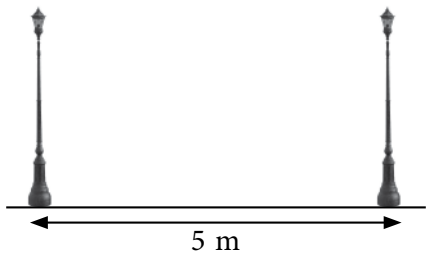
(C) 12 L 500 mL (D) 104100 mL

**16.** How much does  cost ?


(A) ₹ 100 (B) ₹ 150

(C) ₹ 205 (D) ₹ 180

**17.** 500 poles were erected along one side of a straight road. Two poles were 5 m apart. What is the distance between the first pole and the last pole?




(A) 2 km 90 m (B) 3 km 495 m

(C) 2 km 500 m (D) 2 km 495 m

**18.** A toy car costs ₹ 45 more than a toy bike. If the cost of these two toys is ₹ 1085, then how much does the toy bike cost?

(A) ₹ 450 (B) ₹ 545

(C) ₹ 520 (D) ₹ 475

**19.** Soham's birthday is five days before her sister's birthday which is on third Saturday in November 20XX.

| NOVEMBER 20XX | | | | | | |
|---|---|---|---|---|---|---|
| Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

On which date is Soham's birthday?

(A) 4th November

(B) 11th November

(C) 10th November

(D) 12th November

**20.** Gaurav's weight is 72 kg and his sister is $1\frac{1}{6}$ times to his weight. What is the weight of Gaurav's sister?

(A) 90 kg (B) 64 kg

(C) 92 kg (D) 84 kg

**21.** A milkman has 20 L 500 mL of milk. He gives 3 L 250 mL to Mrs Gupta, 2 L to Mrs Sharma and 4 L 500 mL to Mrs Saxena. How much milk is left with the milkman?

(A) 9 L 750 mL (B) 7 L 250 mL

(C) 9 L 50 mL (D) 8 L 250 mL

**22.** If a year has 366 days and a day has 24 hours, then how many hours are there in a half year?

(A) 5460 (B) 4120

(C) 4975 (D) 4392

**23.** Shilpa walks 5 km 50 m and Amit walks 3 km 212 m every morning. How much more distance does Shilpa walk than Amit?

(A) 1 km 838 m (B) 1852 km

(C) 1 km 520 m (D) 1720 km

**24.** Priyanka uses 18 tomatoes to make half litre of tomato sauce. How many tomatoes does she need to make 5 litres of tomato sauce?

(A) 120 (B) 155
(C) 135 (D) 180

**25.** Pooja packed 624 caps into packets of 4. She sold them at ₹ 50 per packet. How much amount did she get in all?

(A) ₹ 7542 (B) ₹ 6500
(C) ₹ 7800 (D) ₹ 6420

**26.** Manish purchased 22 m 35 cm cloth for shirts, 31 m 16 cm for trousers and 1 m 34 cm for other purposes. How much cloth did he purchase in all?

(A) 49 m 30 cm (B) 54 m 85 cm
(C) 50 m 25 cm (D) 514 m 20 cm

**27.** The length of Road *A* is 130 km 750 m, length of Road *B* is 98 km 411 m and length of Road *C* is 223 km 42 m. Find the difference of length of Road *A* and Road *B* together and length of Road *C*.

(A) 7 km 220 m (B) 5 km 105 m
(C) 6 km 119 m (D) 6 km 19 m

**28.** Mr Verma and his family had flight at 6 : 30 a.m. on 15$^{th}$ May. They left home at 4 : 08 a.m. They took 1 hr 15 minutes to reach the airport. For how much time they have to wait at the airport for boarding the flight?

(A) 65 minutes (B) 76 minutes
(C) 66 minutes (D) 67 minutes

**29.** Arrange the following in descending order.

81 L 252 mL (P) 20 L less than 70 L 520 mL (Q)

15 L more than 80 L 250 mL (R)

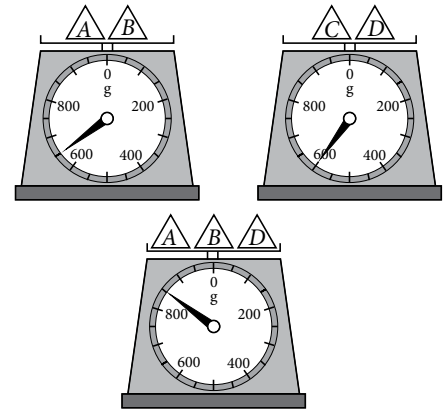
(A) R, P, Q (B) P, Q, R
(C) R, Q, P (D) Q, P, R

**30.** The capacity of a beaker is 3 L 600 mL. What is the total capacity of 5 such beakers?

(A) 18 L (B) 1800 mL
(C) 17 L (D) 16800 mL

## Achievers Section (HOTS)

**31.** What is the weight of $\triangle C$?




(A) 300 g (B) 350 g
(C) 400 g (D) 450 g

**32.** The given table shows the amount spent by Priya and Puneet in a month.

| Items | Amount (in ₹) spent by Priya | Amount (in ₹) spent by Puneet |
|---|---|---|
| Food | 1250 | 1300 |
| Petrol | 550 | 650 |
| Grocery | ? | ? |
| Medicine | 500 | 450 |
| Miscellaneous | 1150 | 1250 |
| Total | 3800 | 3850 |

Who spent more amount on grocery and by how much?

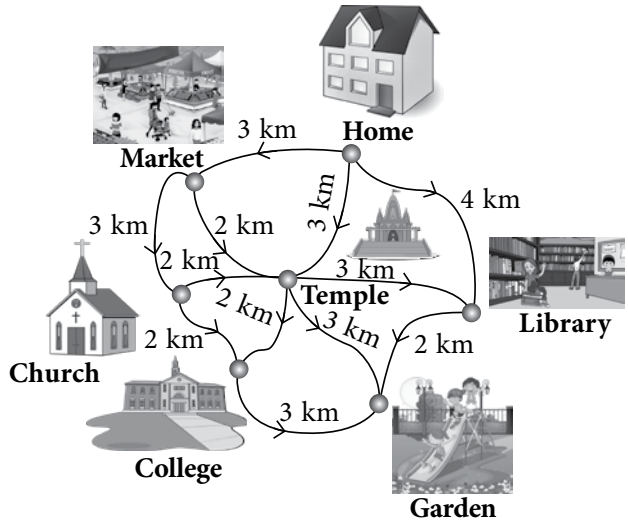
(A) Priya, ₹ 150 (B) Puneet, ₹ 180
(C) Priya, ₹ 180 (D) Puneet, ₹ 150

**33.** The following table shows the schedule of some trains in 12 hour clock format as well as 24 hour clock format where some entries are missing. Find the missing entries.

| Trains | Arrival Time | | Departure Time | |
|---|---|---|---|---|
| | 12 hour clock time | 24 hour clock time | 12 hour clock time | 24 hour clock time |
| P | (i) | 17:50 | 8:20 p.m. | (ii) |
| Q | 6:20 a.m. | (iii) | (iv) | 10:50 |

| | (i) | (ii) | (iii) | (iv) |
|---|---|---|---|---|
| (A) | 5:50 p.m. | 20:20 | 06:20 | 10:50 a.m. |
| (B) | 4:50 p.m. | 16:20 | 18:20 | 10:50 p.m. |
| (C) | 5:50 a.m. | 20:20 | 06:40 | 8:50 a.m. |
| (D) | 4:50 a.m. | 17:20 | 18:40 | 8:50 p.m. |

**34.** Sakshi is practicing for a race. She uses the given map to find the possible routes. The route must starts from her home and ends at the garden. She wants to take the longest route. Which of the following is the best route?




(A) Home - Temple - College - Garden
(B) Home - Library - Garden
(C) Home - Market - Church - College - Garden
(D) Home - Market - Church - Temple - College - Garden

**35.** Vineet goes to his office daily by his bike. The petrol used on different days of a week are shown below:

| Days | Petrol used |
|---|---|
| Monday | 180 mL |
| Tuesday | 350 mL |
| Wednesday | 413 mL |
| Thursday | 452 mL |
| Friday | 510 mL |

Read the above information carefully and select the CORRECT option.
(A) Maximum petrol is used on Thursday.
(B) Total petrol used in all the given days is 19 L.
(C) Total petrol used on Monday and Tuesday together is 20 mL more than the petrol used on Friday.
(D) None of these

## SOF IMO 2019 QUESTIONS

**1.** Sneha went for playing at 3:15 p.m. and returned home 1 hour 15 minutes later. Which of the following clocks shows the time she came back home?

(A) 
(B) 
(C) 
(D) 

*(Level-1)*

**2.** If  = 525 mL and  = 270 mL, then  = _____.

(A) 130 mL (B) 105 mL
(C) 120 mL (D) 250 mL *(Level-1)*

**3.** Rishi had ₹ 7295. He spent ₹ 2105 on shopping, ₹ 1223 on travelling and ₹ 1500 on movie. How much money is left with him now?

(A) ₹ 2467 (B) ₹ 3105
(C) ₹ 2400 (D) ₹ 2050 *(Level-1)*

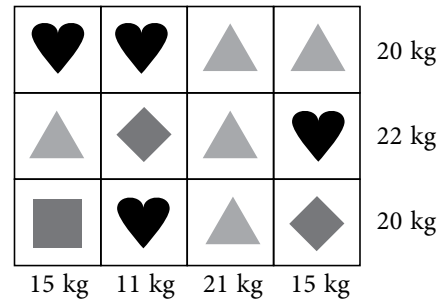
**4.** Aanya filled 15 L 750 mL of petrol in her car. She used 7 L 250 mL of petrol while going from Delhi to Agra. Find the quantity of petrol left in her car.

(A) 8 L 100 mL (B) 7 L 500 mL
(C) 8 L 500 mL (D) 6 L 200 mL *(Level-1)*

**5.** In an adventure park, Ridhima took a water ride of 20 minutes and looping ride of 45 minutes one after another. If she finished the second ride at 6 : 35 p.m., then when did she start her first ride?

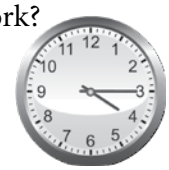
(A) 5 : 30 a.m. (B) 3 : 30 p.m.
(C) 5 : 30 p.m. (D) 4 : 30 p.m. *(Level-1)*

**6.** Find the value of ♥ + ▲ − ◆.



(A) 3 kg (B) 10 kg
(C) 5 kg (D) 18 kg *(Level-1)*

**7.** The given clock shows the time at which Sonika starts playing the guitar in the evening. She played guitar for 2 hrs 15 mins. Then after taking 20 minutes break, she did her homework for 1 hr 15 mins. At what time did she finish her homework?



(A) 8 : 05 p.m.
(B) 7 : 50 p.m.
(C) 8 : 00 p.m.
(D) 8 : 10 p.m. *(Level-1)*

**8.** The given table shows the rates of some items in a shopping mall. Study it carefully and answer the following question.

| Item | Cost (in ₹) | Item | Cost (in ₹) |
|---|---|---|---|
| T-shirt | 430.00 | Shawl | 1100.00 |
| Saree | 2100.00 | Dupatta | 130.00 |
| Shirt | 970.00 | Pair of shoes | 720.00 |
| Watch | 1200.00 | Belt | 120.00 |

Vishal wants to buy 2 shirts, 1 watch, 2 belts and 3 T-shirts. How much amount does he need to pay?
(A) ₹ 4670 (B) ₹ 6100
(C) ₹ 5000 (D) ₹ 5120 *(Level-1)*

**9.** Mr Gupta travelled 75 km 800 m by car and 1800 km 40 m by air. How much distance did he travel in all?
(A) 1875 km 840 m (B) 1675 km
(C) 175800 km (D) 255840 km *(Level-1)*

**10.** Manish buys a bag of rice weighing 4 kg 50 g from a shop every month. How much quantity of rice will he buy in 6 months?
(A) 24 kg 300 g (B) 22 kg 500 g
(C) 18 kg 600 g (D) 20 kg 500 g *(Level-1)*

**11.** A barrel contains 30 litres of milk. A milk dealer empties it equally into 6 cans. Each can will hold _____ of milk.
(A) 5 litres (B) 24 litres
(C) 36 litres (D) 180 litres *(Level-1)*

**12.** A cricket match started at 7:50 p.m. and it lasted for 3 hours 45 minutes. At what time did the match finish?
(A) 10:35 p.m. (B) 11:25 p.m.
(C) 11:35 p.m. (D) 10:55 p.m. *(Level-1)*

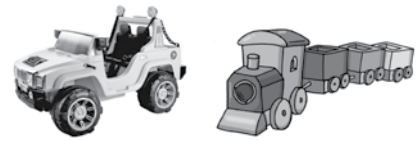
**13.** Ruhanika bought 12 headphones for ₹ 3972. If each headphone has same price, then how much did she pay for one headphone?
(A) ₹ 331 (B) ₹ 530
(C) ₹ 281 (D) ₹ 361 *(Level-1)*

**14.** A wooden log is 3 m 48 cm long and another wooden log is 3 m 140 mm long. What is the total length of both the logs?
(A) 5 m 56 cm (B) 662 cm
(C) 5060 cm (D) 5 m 62 cm *(Level-2)*

**15.** A container has a capacity of 61 L 365 mL. How many cans each of capacity 4 L 91 mL are needed to fill the container?
(A) 25 (B) 18
(C) 15 (D) 12 *(Level-2)*

**16.** Kanika wakes up at 6:15 a.m. She leaves her home after 20 minutes for jogging and jogs for 35 minutes. At what time her jogging completes?
(A) 7:05 a.m. (B) 7:10 a.m.
(C) 7:15 a.m. (D) 7:20 a.m. *(Level-2)*

**17.** Ajay bought 2 toy cars and 3 toy trains. The cost of a toy train is ₹ 45 more than the cost of a toy car. If he gave the cashier two ₹ 500 notes, then how much change did he get?



₹ 130

(A) ₹ 215 (B) ₹ 310
(C) ₹ 115 (D) ₹ 210 *(Level-2)*

**18.** The given table shows the duration of Aanya's tuition classes on four days. How much total time did Aanya spend on tuition classes?

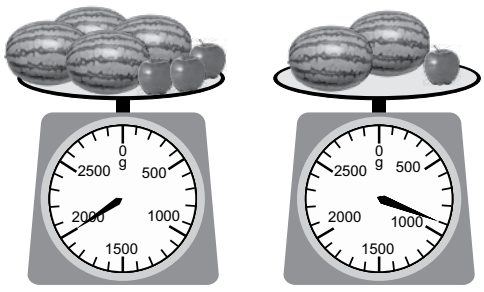
| Day | Time |
|---|---|
| Monday | 2 hrs 15 mins |
| Tuesday | 45 mins |
| Wednesday | 1 hr 52 mins |
| Thursday | 1 hr 40 mins |

(A) 7 hrs 32 mins (B) 6 hrs 42 mins

(C) 7 hrs 42 mins (D) 6 hrs 32 mins

*(Level-2)*

**19.** Study the given figures carefully and find the weight of + .




(A) 450 g (B) 480 g

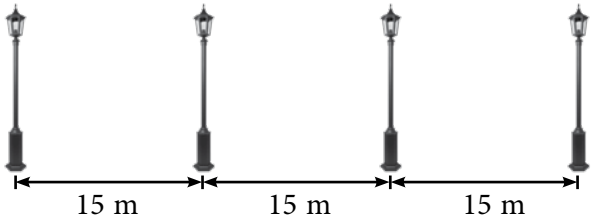
(C) 550 g (D) 580 g *(Level-2)*

**20.** Priya, Payal and Kirti bought $1\frac{3}{4}$ m, $2\frac{2}{5}$ m and $3\frac{1}{2}$ m of ribbon for decorating the birthday present for Raman. What is the total length of ribbon they bought?

(A) $7\frac{11}{20}$ m (B) $6\frac{13}{20}$ m

(C) $7\frac{13}{20}$ m (D) $6\frac{11}{20}$ m *(Level-2)*

**21.** 400 poles were erected along a straight road. The distance between two consecutive poles is 15 m. What is the distance between first and 199$^{th}$ pole?

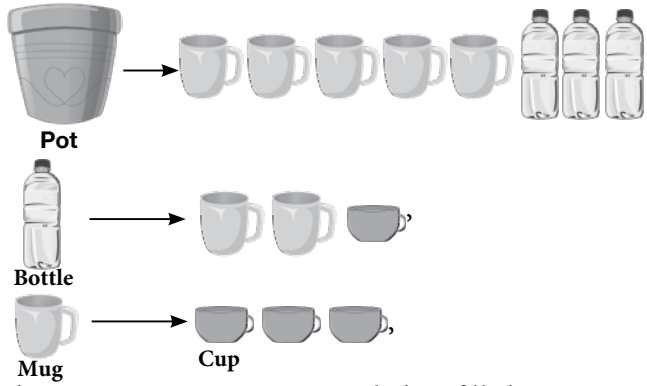



(A) 2 km 985 m (B) 2 km 970 m

(C) 3 km 970 m (D) 3 km 985 m

*(Level-2)*

**22.** If




then _____ cups are needed to fill the pot.

(A) 36 (B) 33

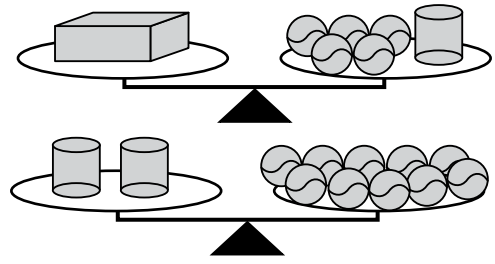
(C) 15 (D) 18 *(Level-2)*

**23.** Avika was saving money to buy a necklace worth ₹ 5824. She saved ₹ 416 every month for 1 year. How much more money does she need to save to buy the necklace?

(A) ₹ 832 (B) ₹ 932

(C) ₹ 780 (D) ₹ 820 *(Level-2)*

**24.** If the weight of is 2 kg, then the weight of is _____ kg.



(A) 40 (B) 10

(C) 20 (D) 15 *(Level-2)*

**25.** Anamika's flight to Bangalore departs at 2 : 45 p.m. She has to check in at the airport terminal 1 hour 10 minutes earlier. The journey to the terminal takes 1 hr 15 mins. She needs 45 minutes to get dressed and 20 minutes to have her lunch. At what time should she start preparing for her trip?

(A) 10 : 55 a.m. (B) 11 : 15 p.m.

(C) 11 : 15 a.m. (D) 12 : 05 p.m.

*(Level-2)*

# HINTS & EXPLANATIONS

## SELF TEST - 1

**1. (A):** 44 km 29 m + 13 km 500 m = 57 km 529 m
Now, 57 km 529 m – 9 km 200 m = 48 km 329 m
So, 44 km 29 m + 13 km 500 m – 9 km 200 m
= 48 km 329 m

**2. (C):** Weight of Karan = 56 kg 250 g
Weight of Karan's brother = 45 kg 850 g
So, total weight = 56 kg 250 g + 45 kg 850 g
= 56250 g + 45850 g = 102100 g
= 102 kg 100 g

**3. (B):** 3 kg 500 g + 1000 mg
= 3000 g + 500 g + 1 g
= 3501 g
and 4 kg 200 g + 2000 mg
= 4000 g + 200 g + 2g
= 4202 g
So, 3501 g $\boxed{<}$ 4202 g

**4. (D):** Total length of cloth = 5 m 30 cm
Length of cloth needed to make the curtain = 3 m 70 cm
So, remaining length of cloth = 5 m 30 cm – 3 m 70 cm
= 530 cm – 370 cm
= 160 cm or 1 m 60 cm

**5. (B):** 28 L 325 mL + 15 L 120 mL = 43 L 445 mL
Now, 43 L 445 mL – 18 L 210 mL = 25 L 235 mL
So, 28 L 325 mL + 15 L 120 mL – 18 L 210 mL
= 25 L 235 mL

## SELF TEST - 2

**1. (B)**

**2. (D):**
$$24\overline{)422}\,(17 \leftarrow \text{Days}$$
$$-24\downarrow$$
$$182$$
$$-168$$
$$14 \leftarrow \text{Hours}$$
So, 422 hours = 17 days 14 hours

**3. (D):** Time shown in the clock is 5 : 25.
50 mins after 5 : 25 is 6 : 15.

**4. (C):** Total amount of money Shivani has = ₹ 540
Cost of 1 cap = ₹ 12
So, number of caps she can buy = ₹ 540 ÷ ₹ 12 = 45

**5. (B):** (A) ₹ 35.60 = 35.60 × 100 paise
= 3560 paise
(B) ₹ 20.90 = 20.90 × 100 paise = 2090 paise
(C) ₹ 142.50 = 142.50 × 100 paise = 14250 paise
(D) ₹ 31.61 = 31.61 × 100 paise = 3161 paise

## EXERCISE

**1. (C):** Number of working hours in a day = 8
Number of working hours in 2 weeks = 8 × 14 = 112
Amount of money earned in 1 hour = ₹ 15
Amount of money earned in 112 hours
= ₹ (15 × 112) = ₹ 1680

**2. (A):** Quantity of sugar bought from shop $P$
= 30 kg 500 g = 30500 g
Quantity of sugar bought from shop $Q$
= 20 kg 750 g = 20750 g
∴ Amount of sugar bought from shop $P$ more than shop $Q$ = 30500 g – 20750 g = 9750 g
= 9 kg 750 g

**3. (B):** Weight of 1  = 180 g
Weight of 3  + 1  = 360 g
⇒ Weight of 3  + 180 g = 360 g
⇒ Weight of 3  = 360 g – 180 g = 180 g
⇒ Weight of 1  = $\frac{180}{3}$ g = 60 g

**4. (B):** 10 g 45 mg + 12 g 105 mg = 22 g 150 mg
= 22150 mg
20 g 215 mg + 18 g 315 mg = 38 g 530 mg
= 38530 mg
Now, 22150 $\boxed{<}$ 38530

**5. (B):** Weight of box $A$ + Weight of box $B$
= Weight of box $C$ + Weight of box $D$
⇒ $\frac{3}{8}$ kg + Weight of box $B$ = $\left(\frac{1}{4}+\frac{1}{2}\right)$kg = $\frac{3}{4}$ kg
⇒ Weight of box $B$ = $\left(\frac{3}{4}-\frac{3}{8}\right)$kg
= $\left(\frac{6-3}{8}\right)$kg = $\frac{3}{8}$ kg

**6. (C):** Total cost of toy car and teddy bear
= ₹ 525 + ₹ 405 = ₹ 930

Amount of money Varun had = ₹ 2000

∴ Amount of money left with him

= ₹ 2000 – ₹ 930 = ₹ 1070

**7. (B):** Distance travelled on first day = $5\frac{1}{2}$ km

$= \frac{11}{2}$ km

Total distance travelled on both days = 18 km

So, distance travelled on second day = $\left(18 - \frac{11}{2}\right)$ km

$= \left(18 \times \frac{2}{2} - \frac{11}{2}\right)$ km $= \left(\frac{36-11}{2}\right)$ km

$= \frac{25}{2}$ km $= 12\frac{1}{2}$ km

**8. (A):** Quantity of flour used for 15 cakes

= 3 kg 750 g = 3750 g

So, quantity of flour used for 1 cake = 3750 g ÷ 15

= 250 g

**9. (B):** (A) 450 mm = 45 cm

(Because 1 mm = $\frac{1}{10}$ cm)

(B) 2 m 10 cm = 200 cm + 10 cm = 210 cm

(Because 1 m = 100 cm)

(C) 24570 m = 24 km 570 m

(Because 1 m = $\frac{1}{1000}$ km)

(D) 5 dm = 50 cm (Because 1 dm = 10 cm)

**10. (B)**

**11. (B):** Capacity of 1 small container = 400 mL

Capacity of 9 small containers = 400 × 9 = 3600 mL

Capacity of 1 big container = 1500 mL

Capacity of 2 big containers = 1500 × 2 = 3000 mL

So, capacity of the tank = Total capacity of 9 small and 2 big containers = 3600 mL + 3000 mL = 6600 mL

= 6 L 600 mL

**12. (C):** Capacity of a kettle = 3 L

Capacity of 20 kettles = 3 × 20 = 60 L

**13. (C):** Total amount of money Yogesh had

= ₹ 1800

Total amount of money spent by him

= ₹ (320 + 240 + 800) = ₹ 1360

∴ Amount of money left with him

= ₹ 1800 – ₹ 1360 = ₹ 440

**14. (C):** Time at which Abhinav returned home = 7:20 a.m.

Duration of walk = 1 hour and 45 minutes

So, time at which he start to walk

= 1 hour 45 minutes before 7 : 20 a.m. = 5: 35 a.m.

**15. (B):** Total petrol filled = 5 L 700 mL + 3 L 250 mL + 5 L 150 mL = 14 L 100 mL

**16. (B):** Cost of 3  = ₹ 630

Cost of 1  = ₹ 630 ÷ 3 = ₹ 210

Also, cost of 2  + cost of 1  = ₹ 510

⇒ Cost of 2  + ₹ 210 = ₹ 510

⇒ Cost of 2  = ₹ 510 – ₹ 210 = ₹ 300

⇒ Cost of 1  = ₹ 300 ÷ 2 = ₹ 150

**17. (D):** Distance between two poles = 5 m

Distance between first and last pole = 5 × 499 m

= 2495 m or 2 km 495 m.

**18. (C):** Since, cost of toy car = Cost of toy bike + ₹ 45

Also, cost of toy car + cost of toy bike = ₹ 1085

⇒ Cost of toy bike + ₹ 45 + cost of toy bike = ₹ 1085

⇒ Cost of 2 toy bikes = ₹ 1085 – ₹ 45 = ₹ 1040

So, cost of 1 toy bike = ₹ 1040 ÷ 2 = ₹ 520

**19. (B):** Third Saturday of November 20XX falls on 16th November.

So, Soham's sister birthday is on 16th November.

Five days before 16th November is 11th November.

So, Soham's birthday is on 11th November.

**20. (D):** Weight of Gaurav = 72 kg

Weight of Gaurav's sister = $1\frac{1}{6}$ times of weight of Gaurav = $\frac{7}{6} \times 72 = 84$ kg

**21. (A):** Quantity of milk, milkman has = 20 L 500 mL

Total quantity of milk he gave = 3 L 250 mL + 2 L + 4 L 500 mL

= 3250 mL + 2000 mL + 4500 mL

= 9750 mL = 9 L 750 mL

**22. (D):** Number of days in a year = 366

Number of days in a half year = $\frac{366}{2} = 183$

Number of hours in a day = 24

So, number of hours in 183 days = 24 × 183 = 4392

**23. (A):** Distance walked by Shilpa = 5 km 50 m = 5050 m
Distance walked by Amit = 3 km 212 m = 3212 m
Distance walked by Shilpa more than Amit
= 5050 m – 3212 m = 1838 m or 1 km 838 m

**24. (D):** Number of tomatoes used to make $\left(\frac{1}{2}\right)$ litre of tomato sauce = 18

Number of tomatoes used to make one litre of tomato sauce = 18 × 2 = 36
∴ Number of tomatoes used to make 5 litres of tomato sauce = 36 × 5 = 180

**25. (C):** Number of caps packed = 624
Number of caps in 1 packet = 4
Number of packets Pooja packed = 624 ÷ 4 = 156
Cost of one packet = ₹ 50
∴ Cost of 156 packets = ₹ 50 × 156 = ₹ 7800

**26. (B):** Total length of cloth purchased by Manish
= 22 m 35 cm + 31 m 16 cm + 1 m 34 cm
= 2235 cm + 3116 cm + 134 cm
= 5485 cm = 54 m 85 cm

**27. (C):** Length of Road *C* = 223 km 42 m
= 223042 m
Total length of Road *A* and Road *B* together
= 130 km 750 m + 98 km 411 m
= 130750 m + 98411 m
= 229161 m
Required difference = 229161 m – 223042 m
= 6119 m or 6 km 119 m

**28. (D):** Time at which Mr Verma and his family left home = 4:08 a.m.
Time at which they reach the airport
= 1 hr 15 minutes after 4:08 a.m. = 5:23 a.m.
Time of flight = 6:30 a.m.
So, duration of time they have to wait at the airport for boarding the flight = Duration between 5:23 a.m. to 6:30 a.m. = 67 minutes

**29. (A):** P : 81 L 252 mL = 81000 mL + 252 mL
= 81252 mL
Q : 70 L 520 mL – 20 L
= 70000 mL + 520 mL – 20000 mL
= 50520 mL
R : 80 L 250 mL + 15 L
= 80000 mL + 250 mL + 15000 mL
= 95250 mL
As, 95250 > 81252 > 50520
So, the correct descending order is R, P, Q.

**30. (A):** Capacity of 1 beaker = 3 L 600 mL
= 3600 mL
Capacity of 5 such beakers = 5 × 3600 mL
= 18000 mL = 18 L

**31. (C):** Weight of ($\triangle A$ + $\triangle B$ + $\triangle D$) = 850 g
and weight of ($\triangle A$ + $\triangle B$) = 650 g
So, 650 g + weight of $\triangle D$ = 850 g
⇒ Weight of $\triangle D$ = 850 g – 650 g = 200 g
Also, we have
Weight of ($\triangle C$ + $\triangle D$) = 600 g
⇒ Weight of $\triangle C$ + 200 g = 600 g
⇒ Weight of $\triangle C$ = 600 g – 200 g = 400 g

**32. (A):** Total amount spent on various items by Priya = ₹ 3800
So, ₹ (1250 + 550 + 500 + 1150) + Amount spent on grocery = ₹ 3800
⇒ Amount spent on grocery = ₹ 3800 – ₹ 3450
= ₹ 350
Total amount spent on various items by Puneet = ₹ 3850
So, ₹ (1300 + 650 + 450 + 1250) + Amount spent on grocery = ₹ 3850
⇒ Amount spent on grocery = ₹ 3850 – ₹ 3650
= ₹ 200
So, Priya spent ₹ 350 – ₹ 200 = ₹ 150 more on grocery than Puneet.

**33. (A)**

**34. (D):** (A) Total distance covered
= 3 km + 2 km + 3 km = 8 km
(B) Total distance covered = 4 km + 2 km = 6 km
(C) Total distance covered = 3 km + 3 km + 2 km + 3 km = 11 km
(D) Total distance covered = 3 km + 3 km + 2 km + 2 km + 3 km = 13 km
So, route in option (D) is the best route.

**35. (C):** (A) Incorrect : Maximum petrol is used on Friday.
(B) Incorrect : Total petrol used in all the given days = 180 mL + 350 mL + 413 mL + 452 mL + 510 mL = 1905 mL = 1 L 905 mL ≠ 19 L
(C) Correct : Total petrol used on Monday and Tuesday together = 180 mL + 350 mL = 530 mL
Petrol used on Friday = 510 mL
So, petrol used on Monday and Tuesday together is (530 – 510) mL = 20 mL more than the petrol used on Friday.

## SOF IMO 2019 QUESTIONS

**1. (C):** Time at which Sneha go for playing = 3 : 15 p.m.
Duration of time after which she returned home = 1 hour 15 minutes
So, time at which she came back home = 4 : 30 p.m.

**2. (C):** Capacity of 5 buckets = 525 mL
So, capacity of 1 bucket = (525 ÷ 5) mL = 105 mL
Now, capacity of (2 buckets + 4 bottles) = 270 mL
⇒ 210 mL + Capacity of 4 bottles = 270 mL
⇒ Capacity of 4 bottles = 270 – 210 = 60 mL
⇒ Capacity of 1 bottle = (60 ÷ 4) mL = 15 mL
∴ Capacity of (1 bucket + 1 bottle)
= (105 + 15) mL = 120 mL

**3. (A):** Amount of money Rishi has = ₹ 7295
Amount of money he spent
= ₹ (2105 + 1223 + 1500) = ₹ 4828
So, amount of money left with him
= ₹ (7295 – 4828) = ₹ 2467

**4. (C):** Quantity of petrol filled in the car = 15 L 750 mL
Quantity of petrol used = 7 L 250 mL
So, quantity of petrol left in the car
= 15 L 750 mL – 7 L 250 mL = 8 L 500 mL

**5. (C):** Total duration of time for 2 rides = 65 minutes = 1 hour 5 minutes
So, she start her ride 1 hr 5 mins before 6:35 p.m. *i.e.*, 5:30 p.m.

**6. (C):**  = 21 kg

⇒  = 21 ÷ 3 = 7 kg

Also,  = 20 kg

⇒  + 7 + 7 = 20

⇒  = 20 – 14 = 6 kg

⇒  = 3 kg

Now,  = 15 kg

⇒ 7 + 3 +  = 15

⇒  = 15 – 10 = 5 kg

So,  = 3 + 7 – 5
= 10 – 5 = 5 kg

**7. (A):** Time at which Sonika starts playing guitar = 4 : 15 p.m.
Time taken by her in playing guitar, break and doing homework = 2 hrs 15 mins + 20 mins + 1 hr 15 mins
= 3 hrs 50 mins
∴ Time at which Sonika finishes her homework = 3 hrs 50 mins after 4 : 15 p.m.
= 8 : 05 p.m.

**8. (A):** Cost of 2 shirts = ₹ 970 × 2 = ₹ 1940
Cost of 1 watch = ₹ 1200
Cost of 2 belts = ₹ 120 × 2 = ₹ 240
Cost of 3 T-shirts = ₹ 430 × 3 = ₹ 1290
∴ Total amount Vishal needed
= ₹ (1940 + 1200 + 240 + 1290) = ₹ 4670

**9. (A):** Distance travelled by car = 75 km 800 m
Distance travelled by air = 1800 km 40 m
∴ Total distance travelled = 75 km 800 m + 1800 km 40 m = 1875 km 840 m

**10. (A):** Quantity of rice bought in 1 month = 4 kg 50 g = 4050 g
Quantity of rice bought in 6 months = 4050 g × 6
= 24300 g = 24 kg 300 g

**11. (A):** Total quantity of milk = 30 L
Number of cans = 6
∴ Quantity of milk in each can = 30 L ÷ 6 = 5 L

**12. (C):** Time at which match started = 7 : 50 p.m.
Duration of match = 3 hrs 45 mins
∴ Time at which match finishes = 3 hrs 45 mins after 7 : 50 p.m. = 11 : 35 p.m.

**13. (A):** Cost of 12 headphones = ₹ 3972
∴ Cost of 1 headphone = ₹ (3972 ÷ 12) = ₹ 331

**14. (B):** Length of one wooden log = 3 m 48 cm = 348 cm
Length of another wooden log = 3 m 140 mm = 3140 mm = 314 cm
∴ Total length of both logs = 348 cm + 314 cm = 662 cm

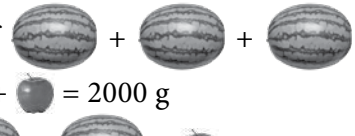
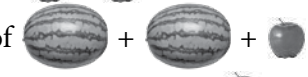
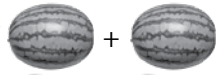
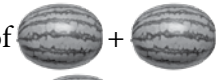
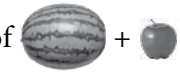
**15. (C):** Capacity of the container = 61 L 365 mL = 61365 mL
Capacity of the can = 4 L 91 mL = 4091 mL
∴ Number of cans needed = 61365 mL ÷ 4091 mL = 15

**16. (B):** Time at which Kanika wakes up = 6 : 15 a.m.
Time at which she starts jogging = 20 mins after 6 : 15 a.m. = 6 : 35 a.m.

Time spent by her in jogging = 35 mins
∴ Time at which she complete her jogging = 35 mins after 6 : 35 a.m. = 7 : 10 a.m.

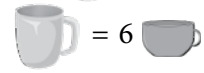
**17. (A):** Cost of toy car = ₹ 130
Cost of toy train = ₹ 130 + ₹ 45 = ₹ 175
Cost of 2 toy cars = ₹ 130 × 2 = ₹ 260
Cost of 3 toy trains = ₹ 175 × 3 = ₹ 525
Total cost of 2 toy cars and 3 toy trains = ₹ (260 + 525) = ₹ 785
Amount of money Ajay gave to the cashier = ₹ 500 × 2 = 1000
∴ Amount of money he get back = ₹ (1000 – 785) = ₹ 215

**18. (D):** Total duration of Aanya's tuition classes = 2 hrs 15 mins + 45 mins + 1 hr 52 mins + 1 hr 40 mins = 6 hrs 32 mins

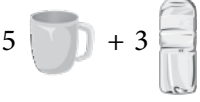
**19. (C):** Weight of  = 2000 g
and weight of  = 900 g
So, 900 g + 900 g + weight of  = 2000 g
⇒ Weight of  = 2000 g – 1800 g = 200 g
⇒ Weight of  + 200 g = 900 g
⇒ Weight of  = 900 g – 200 g = 700 g
⇒ Weight of  = 700 g ÷ 2 = 350 g
So, weight of  = 350 g + 200 g = 550 g

**20. (C):** Length of ribbon bought by Priya $= 1\frac{3}{4}$ m $= \frac{7}{4}$ m
Length of ribbon bought by Payal $= 2\frac{2}{5}$ m $= \frac{12}{5}$ m
Length of ribbon bought by Kirti $= 3\frac{1}{2}$ m $= \frac{7}{2}$ m
∴ Total length of ribbon bought $= \left(\frac{7}{4}+\frac{12}{5}+\frac{7}{2}\right)$m
$= \left(\frac{35}{20}+\frac{48}{20}+\frac{70}{20}\right)$ m $= \frac{153}{20}$m $= 7\frac{13}{20}$m

**21. (B):** Distance between two poles = 15 m
∴ Distance between first and 199th pole
= (15 × 198) m = 2970 m
= 2 km 970 m

**22. (A):**  = 3 cups
⇒ 2 

= 2 
= 6 
⇒ 3  = 21 

= 5 
= 15 

**23. (A):** Cost of necklace = ₹ 5824
Amount saved by Avika in 1 month = ₹ 416
Amount saved by her in 12 months = ₹ (416 × 12) = ₹ 4992
∴ Amount of more money she needed to save = ₹ (5824 – 4992) = ₹ 832

**24. (C):** Weight of 1  = 2 kg
Weight of 2  = Weight of 10 
⇒ Weight of 2  = 10 × 2 kg = 20 kg
∴ Weight of 1  = (20 ÷ 2) kg = 10 kg
Weight of 1  = weight of 5  + Weight of 1 
= (2 × 5) kg + 10 kg
= 10 kg + 10 kg = 20 kg

**25. (C):** Time at which Anamika's flight depart = 2 : 45 p.m.
Time at which she has to check in = 1 hr 10 mins before 2 : 45 p.m. = 1 : 35 p.m.
Time taken by her to reach the airport, getting dressed and having lunch = 1 hr 15 mins + 45 mins + 20 mins = 2 hrs 20 mins
∴ Time at which she should start preparing = 2 hrs 20 mins before 1 : 35 p.m. = 11 : 15 a.m.