

$$\Rightarrow 9x = 4 \times 63$$

[Product of extremes = Product of mean]

$$\Rightarrow x = \frac{4 \times 63}{9} = 28$$

Thus, breadth of a rectangular field is 28 m.

⑧ Let the Leena's younger brother age be x years.

Then, according to question,

$$x : 18 :: 7 : 9$$

$$\Rightarrow x \times 9 = 18 \times 7$$

[Product of extremes = Product of mean]

$$\Rightarrow x = \frac{18 \times 7}{9} = 14$$

Thus, age of Leena's younger brother is 14 years.

⑨ Let the petrol needed be x litres.

Then, by the ratio and proportion method,

$$78 : 6 :: 325 : x$$

$$\Rightarrow 78 \times x = 6 \times 325$$

[Product of extremes = Product of means]

$$\Rightarrow x = \frac{6 \times 325}{78} = 25$$

Thus, 25 litres of petrol will be needed for travelling a distance of 325 km.

⑩

(i) Cost of 12 pens = ₹ 96

$$\therefore \text{cost of 1 pen} = \frac{\text{₹ } 96}{12} = \text{₹ } 8.$$

(ii) Cost of 8 pens = ₹ 80

$$\therefore \text{cost of 1 pen} = \frac{\text{₹ } 80}{8} = \text{₹ } 10$$

Thus, Shukla's pen is cheaper.

(11) Let the labour charges for 18 days be ₹x.

Then according to question,

$$\text{₹ } 300 : 4 \text{ days} :: \text{₹ } x : 18 \text{ days}$$

$$\Rightarrow 300 : 4 :: x : 18$$

$$\Rightarrow 300 \times 18 = 4x$$

[Product of extremes = Product of means]

$$\Rightarrow x = \frac{300 \times 18}{4} = 1350$$

Thus, a labour will get ₹1350 labour charges for 18 days work.

Exercise 8.4

①

①

By the method of proportion,

Let the distance cover in 25 minutes be x metres.

Then, we have $10 : 25 = 500 : x$

$$\therefore 10 \times x = 25 \times 500 \quad [\text{Product of extremes} \\ = \text{Product of means}]$$

$$\therefore x = \frac{25 \times 500}{10} = 1250$$

\therefore In 25 minutes, the boy will walk 1250m.

②

Cost of 12 bananas = ₹ 10

Cost of 1 banana = ₹ $\frac{10}{12}$

$$\therefore \text{Cost of 40 bananas} = ₹ \frac{10}{12} \times 40 \\ = ₹ 60$$

\therefore Cost of 40 bananas will be ₹ 60.

③

Scooter consumes 2 litres of petrol for the distance = 50 km

∴ Scooter will consumes 1 litre of petrol for distance = $\frac{50}{2}$ km = 25 km.

∴ Scooter will consumes 5 litres of petrol for distance = 25 km × 5 = 125 km.

∴ Manish travelled 125 km in 5 litres of petrol.

④

2 kg of mangoes = 12 mangoes

∴ 1 kg of mango = $\frac{12}{2}$ = 6 mangoes.

∴ 8 kg of mangoes = 6 × 8 = 48 mangoes.

There are 50 students in the class.

Thus, sheela is less by 2 mangoes.

(5)

For 150 students, number of buses hired = 3

For 1 student, number of buses hired = $\frac{3}{150}$

∴ For 750 students, number of buses

$$\text{hired} = \frac{3}{150} \times 750 = 15.$$

Thus, Principal have to hire 15 buses for 750 students.

(6)

Time required for writing 5 pages = 30 minutes.

Time required for writing 1 page = $\frac{30}{5}$ minutes.

$$\begin{aligned} \text{(i) } \therefore \text{ Time required for writing 2 pages} &= \frac{30}{5} \times 2 \text{ minutes} \\ &= 12 \text{ minutes} \end{aligned}$$

$$\begin{aligned} \text{(ii) Time required for writing 15 pages} &= \frac{30}{5} \times 15 \text{ minutes} \\ &= 90 \text{ minutes} \\ &= 1 \text{ hr } 30 \text{ minutes.} \end{aligned}$$

⑦ 25 boxes are required to store = 1000 apples

∴ 1 box will contain = $\frac{1000}{25} = 40$ apples

∴ 92 box will contain = $40 \times 92 = 3680$ apples

⑧

In 7 days cow eats grass = 35 kg.

∴ In 1 day cow eats grass = $\frac{35}{7}$ kg

∴ In 10 days cow will eat grass = $\frac{35}{7} \times 10 = 50$ kg.

⑨ 2 dresses required for length of cloth = 5m

∴ 1 dress required for length of cloth = $\frac{5}{2}$ m

∴ 32 dresses will require for length of

$$\begin{aligned}\text{cloth} &= \frac{5}{2} \times 32 \\ &= 80 \text{ m.}\end{aligned}$$

Thus, 80 metres cloth will be needed for 32 dresses.

(10)

Total quantity of rice = $6 \times 10 \text{ kg} = 60 \text{ kg}$.

Cost of 5 kg of rice = ₹ 135

∴ cost of 1 kg of rice = $\frac{\text{₹ } 135}{5} = \text{₹ } 27$

∴ cost of 60 kg of rice = $\text{₹ } 27 \times 60$
 $= \text{₹ } 1620$

(11)

20 people needed = 15 lemons

∴ 1 people will need = $\frac{15}{20}$ lemons

∴ 32 people will need = $\frac{15}{20} \times 32$ lemons
 $= 24$ lemons.

(12)

4 boxes are required to store = 120 apples

\therefore 1 box will contain = $\frac{120}{4} = 30$ apples.

\therefore 15 such boxes will contain = 30×15 apples
= 450 apples

Multiple Choice Questions

① (c)

Solution: $27:72 = \frac{27 \div 9}{72 \div 9} = \frac{3}{8} = 3:8$

② (a)

Solution: $40\text{cm} : 2\text{m} = 40\text{cm} : 200\text{cm}$
 $= \frac{40\text{cm}}{200\text{cm}} = \frac{1}{5} = 1:5$

③ (c)

Solution: 1 hour = 60×60 sec = 3600 seconds

\therefore Required Ratio = 50 sec : 3600 sec
 $= \frac{50\text{ sec}}{3600\text{ sec}} = \frac{1}{72} = 1:72$

④ (d)

Solution: $4:9 = \frac{4}{9} = \frac{4 \times 3}{9 \times 3} = \frac{12}{27} = 12:27$

5(b)

Solution: Share of B = ₹ 150 × $\frac{7}{15}$ = ₹ 70

6(d)

Solution: In $a:b::c:d$, the extreme terms are a and d.

7(a)

Solution: In $p:q::r:s$, the terms q and r are means.

8(b).

Solution: Let the mean proportion be x.

We have, $8:16::x:32 \Rightarrow \frac{8}{16} = \frac{x}{32}$

$$\therefore x = \frac{8 \times 32}{16} = 16$$

Thus, mean proportion is 16.

⑨ (c)

Solution:

$$\begin{aligned}\text{cost of 10 kg of sugar} &= ₹ 32.50 \times 10 \\ &= ₹ 325\end{aligned}$$

⑩ (c)

Solution:

In 5 hours a bus covers = d km

∴ In 1 hour a bus will cover = $\frac{d}{5}$ km

∴ In x hours a bus will cover = $\frac{dx}{5}$ km

Mental Maths

① T

② F

Explanation: Two quantities can be compared only, if both the quantities are of the same kind and are written in the same unit.

③ T

④ T

Explanation:

$$10 \text{ rupees} = 1000 \text{ paise}$$

$$\therefore \text{Required Ratio} = \frac{50p}{1000p} = \frac{1}{20} = 1:20$$

⑤ F

Explanation: $1:2 :: 3:4$

$$\therefore \frac{1}{2} \neq \frac{3}{4}$$

Thus, 1, 2, 3, 4 are not in proportion.

⑥ T

⑦ F

Explanation:

If 10, 20, 30 are in continued proportion,

then, $10:20 :: 20:30$

$$\frac{10}{20} = \frac{20}{30} \Rightarrow \frac{1}{2} \neq \frac{2}{3}$$

Thus, 10, 20, 30 are not in continued proportion.

⑧ T

⑨ F

Explanation:

$$4:5 = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$$

$$5:4 = \frac{5 \times 5}{4 \times 5} = \frac{25}{20}$$

Since $\frac{25}{20} > \frac{16}{20}$

ie $5:4 > 4:5$

Thus, $5:4$ is greater than $4:5$.

⑩ T