Exercise 12C

Q1.

**Answer :**

(i)

Clearly, $\frac{x}{y} = \frac{3}{9} = \frac{5}{15} = \frac{8}{24} = \frac{11}{33} = \frac{26}{78} = \frac{1}{3}\left(\text{constant}\right)$

Therefore, x and y are proportional.

(ii)

Clearly, $\frac{x}{y} = \frac{2.5}{10} = \frac{4}{16} = \frac{7.5}{30} = \frac{10}{40} = \frac{1}{4}$, while $\frac{14}{42} = \frac{1}{3}$

i.e., $\frac{2.5}{10} = \frac{4}{16} = \frac{7.5}{30} = \frac{10}{40}$ is not equal to $\frac{14}{42}$.

Therefore, $x$ and $y$ are not proportional.

(iii)

Clearly, $\frac{x}{y} = \frac{5}{15} = \frac{7}{21} = \frac{9}{27} = \frac{25}{75} = \frac{1}{3}$, while $\frac{15}{60} = \frac{18}{72} = \frac{1}{4}$

i.e., $\frac{5}{15} = \frac{7}{21} = \frac{9}{27} = \frac{25}{75}$ is not equal to $\frac{15}{60}$ and $\frac{18}{72}$.

Therefore, $x$ and $y$ are not proportional.

Q2.

**Answer :**

Since $x$ and $y$ are directly propotional, we have :

$\frac{3}{72} = \frac{x_1}{120} = \frac{x_2}{192} = \frac{10}{y_1}$

Now, $\frac{3}{72} = \frac{x_1}{120}$

$\Rightarrow x_1 = \frac{120 \times 3}{72} = 5$

And, $\frac{3}{72} = \frac{x_2}{192}$

$\Rightarrow x_2 = \frac{3 \times 192}{72} = 8$

And, $\frac{3}{72} = \frac{10}{y_1}$

$\Rightarrow y_1 = \frac{72 \times 10}{3} = 240$

Therefore, $x_1 = 5$, $x_2 = 8$ and $y_1 = 240$

Q3.

**Answer :**

Let the required distance be $x$ km. Then, we have:

| | | |
|---|---|---|
| Quantity of diesel (in litres) | 34 | 20 |
| Distance (in km) | 510 | $x$ |

Clearly, the less the quantity of diesel consumed, the less is the distance covered.
So, this is a case of direct proportion.

$\textbf{Now, } \frac{34}{510} = \frac{20}{x}$

$\Rightarrow \frac{1}{15} = \frac{20}{x}$

$\Rightarrow x \times 1 = 20 \times 15 = 300$

Therefore, the required distance is 300 km.

Q4.

**Answer :**

Let the required charge be Rs *x*. Then, we have:

| Distance (in km) | 150 | 124 |
|---|---|---|
| Taxi charges (in rupees | 1275 | $x$ |

Clearly, the less the distance covered, the less will be the taxi charges.
So, this is a case of direct proportion.

$\textbf{Now, } \frac{150}{1275} = \frac{124}{x}$

$\Rightarrow \frac{2}{17} = \frac{124}{x}$

$\Rightarrow (2 \times x) = (124 \times 17)$

$\Rightarrow x = \frac{124 \times 17}{2}$

$\Rightarrow x = 62 \times 17 = 1054$

Therefore, the required charge is Rs 1,054.

Q5.

**Answer :**

Let the required distance be *x* km. Then, we have:

$1\ \mathbf{h} = 60\ \mathbf{min}$

$\mathbf{i.e.,}\ 5\ \mathbf{h} = 5 \times 60 = 300\ \mathbf{min}$

| Distance (in km) | 16 | *x* |
|---|---|---|
| Time (in min) | 25 | 300 |

Clearly, the more the time taken, the more will be the distance covered.

So, this is a case of direct proportion.

$\textbf{Now, } \frac{16}{25} = \frac{x}{300}$

$\Rightarrow x = \left(\frac{16 \times 300}{25}\right)$

$\Rightarrow x = 192$

Therefore, the required distance is 192 km.

Q6.

**Answer :**

Let the required number of dolls be *x*. Then, we have:

| No of dolls | 18 | *x* |
|---|---|---|
| Cost of dolls (in rupees) | 630 | 455 |

Clearly, the less the amount of money, the less will be the number of dolls bought.

So, this is a case of direct proportion.

$\textbf{Now, } \frac{18}{630} = \frac{x}{455}$

$\Rightarrow \frac{1}{35} = \frac{x}{455}$

$\Rightarrow x = \frac{455}{35}$

$\Rightarrow x = 13$

Therefore, 13 dolls can be bought for Rs 455.

Q7.

**Answer :**

Let the required weight of sugar be *x* kg. Then, we have:

| Weight of sugar (in kg) | 9 | *x* |
|---|---|---|
| Cost of sugar (in rupees) | 166.50 | 259 |

Clearly, more quantity of sugar can be bought for more amount of money.

So, this is a case of direct proportion.

$\textbf{Now, } \frac{9}{166.50} = \frac{x}{259}$

$\Rightarrow x = \frac{9 \times 259}{166.50}$

$\Rightarrow x = \frac{9 \times 259 \times 100}{16650}$

$\Rightarrow x = 14$

Therefore, 14 kg of sugar can be bought for Rs 259.

Q8.

**Answer :**

Let the length of cloth be *x* m. Then, we have:

| | | |
|---|---|---|
| Length of cloth (in metres) | 15 | *x* |
| Cost of cloth (in rupees) | 981 | 1308 |

Clearly, more length of cloth can be bought by more amount of money.
So, this is a case of direct proportion.

$\textbf{Now, } \frac{15}{981} = \frac{x}{1308}$

$\Rightarrow x = \frac{15 \times 1308}{981}$

$\Rightarrow x = 20$

Therefore, 20 m of cloth can be bought for Rs 1,308.

Q9.

**Answer :**

Let *x* m be the length of the model of the ship. Then, we have:

$1\ \text{m} = 100\ \text{cm}$

$\text{Therefore, } 15\ \text{m} = 1500\ \text{cm}$

$35\ \text{m} = 3500\ \text{cm}$

********** END **********