

Direct and Inverse Variations Ex 10.1 Q11

Answer:

Distance (in km)	50	X
Time (in minute)	60	12

Let the distance be x km.

If the time taken is less, the distance covered will also be less. Therefore, it is a direct variation.

$$50: x = 60: 12$$

 $\Rightarrow \frac{50}{x} = \frac{60}{12}$

Applying cross muliplication, we get:

$$x = \frac{50 \times 12}{60}$$
$$= 10$$

Thus, the required distance will be 10 km.

Direct and Inverse Variations Ex 10.1 Q12

Answer:

Number of Boxes	68	X	
Shelf-length (in m)	13.6	20.4	

Let x be the number of boxes that occupy a shelf-length of 20.4 m.

If the length of the shelf increases, the number of boxes will also increase. Therefore, it is a case of direct variation.

$$\frac{68}{x} = \frac{13.6}{20.4}
\Rightarrow 68 \times 20.4 = x \times 13.6
\Rightarrow x = \frac{68 \times 20.4}{13.6}
= \frac{1387.2}{13.6}
= 102$$

Thus, 102 boxes will occupy a shelf - length of 20.4 m.

Direct and Inverse Variations Ex 10.1 Q13

Number of copies	136	X
Length the shelf (in m)	3.4	5.1

Let x be the number of copies that would occupy a shelf-length of 5.1 m.

Since the number of copies and the length of the shelf are in direct variation, we have:

$$\begin{array}{ll} \frac{136}{x} &= \frac{3.4}{5.1} \\ \Rightarrow 136 \times 5.1 = x \times 3.4 \\ \Rightarrow x &= \frac{136 \times 5.1}{3.4} \\ &= 204 \end{array}$$

Thus, 204 copies will occupy a shelf of length 5.1 m.

Direct and Inverse Variations Ex 10.1 Q14

Answer:

Let Rs x be the fare for a journey of 139.2 km.

Distance (in km)	240	139.2
Fare (in Rs.)	15	х

Since the distance travelled and the fare are in direct variation, we have:

$$\begin{array}{l} \frac{240}{139.2} &= \frac{15}{x} \\ \Rightarrow 240 \times x &= 15 \times 139.2 \\ \Rightarrow x &= \frac{15 \times 139.2}{240} \\ &= \frac{2088}{240} \\ &= 8.7 \end{array}$$

Thus, the fare for a journey of 139.2 km will be Rs 8.70.

Direct and Inverse Variations Ex 10.1 Q15 **Answer**:

Let x cm be the thickness of a pile of 294 cardboards.

Thickness (in cm)	3.5	Х
Cardboard	12	294

Since the pile of the cardboards and its thickness are in direct variation, we have

:
$$\frac{3.5}{x} = \frac{12}{294}$$

 $\Rightarrow 3.5 \times 294 = x \times 12$
 $\Rightarrow x = \frac{3.5 \times 294}{12}$
 $= \frac{1029}{12}$
= 85.75 cm

Thus, the thickness of a pile of 294 cardboards will be 85.75 cm (or 857.5 mm).