



Direct and Inverse Variations Ex 10.1 Q21

Answer :

Let x cm be the extension produced by the weight of 700 gm.

| | | |
|----------------|-----|-----|
| Weight (in gm) | 250 | 700 |
| Length (in cm) | 3.5 | x |

Since the amount of extension in an elastic spring varies and the weight hung on it is in direct variation, we have :

$$\begin{aligned}\frac{250}{700} &= \frac{3.5}{x} \\ \Rightarrow x \times 250 &= 3.5 \times 700 \\ \Rightarrow x &= \frac{3.5 \times 700}{250} \\ &= \frac{2450}{250} \\ &= 9.8\end{aligned}$$

Thus, the required extension will be 9.8 cm.

Direct and Inverse Variations Ex 10.1 Q22

Answer :

Let the amount of dust picked up by the earth in 45 days be x pounds.

Since the amount of dust picked up by the earth and the number of days are in direct variation, we have :

Ratio of the dust picked up by the earth in pounds = ratio of the number of days taken

$$\begin{aligned}\Rightarrow \frac{10}{45} &= \frac{2.6 \times 10^8}{x} \\ \Rightarrow x \times 10 &= 45 \times 2.6 \times 10^8 \\ \Rightarrow x &= \frac{45 \times 2.6 \times 10^8}{10} \\ &= \frac{117 \times 10^8}{10} \\ &= 11.7 \times 10^8\end{aligned}$$

Thus, 11.7×10^8 pounds of dust will be picked up by the earth in 45 days.

Direct and Inverse Variations Ex 10.1 Q23

Answer :

Let x be the number of days taken by the earth to pick up 4.8×10^8 kg of dust.

Since the amount of dust picked up by the earth and the number of days are in direct variation, we get :

$$\begin{aligned}\frac{15}{x} &= \frac{1.2 \times 10^8}{4.8 \times 10^8} \\ \Rightarrow x &= 15 \times \frac{4.8}{1.2} \\ \Rightarrow x &= 60\end{aligned}$$

Thus, the required number of days will be 60.

***** END *****