



Direct and Inverse Variations Ex 10.2 Q7

Answer :

Let x be the extra number of men employed to complete the job in 7 months.

Number of men	420	x
Months	9	7

Since the number of men hired and the time required to finish the piece of work are in inverse variation, we have :

$$420 \times 9 = 7x$$

$$\Rightarrow x = \frac{420 \times 9}{7}$$

$$= 540$$

Thus, the number of extra men required to complete the job in 7 months = 540
 $- 420 = 120$

Direct and Inverse Variations Ex 10.2 Q8

Answer :

Number of men	1200	x
Days	35	25

Let x be the number of additional men required to finish the stock in 25 days.

Since the number of men and the time taken to finish a stock are in inverse variation, we have :

$$1200 \times 35 = 25x$$

$$\Rightarrow x = \frac{1200 \times 35}{25}$$

$$= 1680$$

$$\therefore \text{Required number of men} = 1680 - 1200 = 480$$

Thus, an additional 480 men should join the existing 1200 men to finish the stock in 25 days.

Direct and Inverse Variations Ex 10.2 Q9

Answer :

Let x be the number of days with food provisions for 80 (i.e., 50 + 30) girls.

Number of girls	50	80
Number of days	40	x

Since the number of girls and the number of days with food provisions are in inverse variation, we have :

$$50 \times 40 = 80x$$

$$\Rightarrow x = \frac{50 \times 40}{80}$$

$$= \frac{2000}{80}$$

$$= 25$$

Thus, the required number of days is 25.

Direct and Inverse Variations Ex 10.2 Q10

Answer :

Let the increased speed be x km/h.

Time (in h)	10	8
Speed (km/h)	48	$x+48$

Since speed and time taken are in inverse variation, we get :

$$10 \times 48 = 8(x + 48)$$

$$\Rightarrow 480 = 8x + 384$$

$$\Rightarrow 8x = 480 - 384$$

$$\Rightarrow 8x = 96$$

$$= 12$$

Thus, the speed should be increased by 12km/h.

Direct and Inverse Variations Ex 10.2 Q11

Answer :

It is given that after 4 days, out of 28 days, the fort had enough food for 1200 soldiers for $(28 - 4 = 24)$ days.

Let x be the number of soldiers who left the fort .

Number of soldiers	1200	$1200-x$
Number of days for which food lasts	24	32

Since the number of soldiers and the number of days for which the food lasts are in inverse variation, we have :

$$1200 \times 24 = (1200 - x) \times 32$$

$$\Rightarrow \frac{1200 \times 24}{32} = 1200 - x$$

$$\Rightarrow 900 = 1200 - x$$

$$\Rightarrow x = 1200 - 900$$

$$= 300$$

Thus, 300 soldiers left the fort.

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