

Chain Rule Questions and Answers Pdf

1. If the cost of x metres of wire is d rupees, then what is the cost of y metres of wire at the same rate?
- Rs. (xy/d)
 - Rs. (xd)
 - Rs. (yd)
 - Rs. (yd/x)

Ans: D

$$\text{Cost of } x \text{ metres} = ₹ d. \text{ Cost of 1 metre} = ₹ \left(\frac{d}{x} \right).$$

$$\text{Cost of } y \text{ metres} = ₹ \left(\frac{d}{x} \times y \right) = ₹ \left(\frac{yd}{x} \right).$$

2. 30 labourers, working 7 hours a day can finish a piece of work in 18 days. If the labourers work 6 hours a day, then the number of labourers to finish the same piece of work in 30 days, will be
- 15
 - 21
 - 22
 - 25

Ans: B

Let the required number of labourers be x . Then,

Less working hrs/day, More labourers

(Indirect Proportion)

More days, Less labourers

(Indirect Proportion)

$$\left. \begin{array}{l} \text{Working Hrs/Day} \quad 6:7 \\ \text{Days} \quad \quad \quad 30:18 \end{array} \right\} :: 30:x$$

$$\therefore 6 \times 30 \times x = 7 \times 18 \times 30 \Leftrightarrow 6x = 126 \Leftrightarrow x = 21.$$

3. 12 men working 8 hours per day complete a piece of work in 10 days. To complete the same work in 8 days, working 15 hours a day, the number of men required is
- 4
 - 5

- c. 6
d. 8 → D

Ans:

Let the required number of men be x .

Less days, More men (Indirect Proportion)

More working hrs per day,

Less men (Indirect Proportion)

$$\left. \begin{array}{l} \text{Days} \quad 8 : 10 \\ \text{Working Hrs} \quad 15 : 8 \end{array} \right\} :: 12 : x$$

$$\therefore 8 \times 15 \times x = 10 \times 8 \times 12$$

$$\Leftrightarrow x = \frac{10 \times 8 \times 12}{8 \times 15} \Leftrightarrow x = 8.$$

4. 20 men complete one third of a piece of work in 20 days. How many more men should be employed to finish the rest of the work in 25 more days?

- a. 10
b. 12
c. 15
d. 20

Ans: B

Let the total number of men be x . Work done = $\frac{1}{3}$, Remaining work = $\left(1 - \frac{1}{3}\right) = \frac{2}{3}$.

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More work, More men (Direct Proportion)

More days, Less men (Indirect Proportion)

$$\left. \begin{array}{l} \text{Work} \quad \frac{1}{3} : \frac{2}{3} \\ \text{Days} \quad 25 : 20 \end{array} \right\} :: 20 : x$$

$$\therefore \left(\frac{1}{3} \times 25 \times x\right) = \left(\frac{2}{3} \times 20 \times 20\right) \Leftrightarrow x = \frac{800}{25} = 32.$$

$$\therefore \text{More men to be employed} = (32 - 20) = 12.$$

5. 3 pumps working 8 hours a day, can empty a tank in 2 days. How many hours a day must 4 pumps work to empty the tank in 1 day?
- a. 9
 - b. 10
 - c. 11
 - d. 12 \rightarrow D

Ans:

Let the required number of working hours per day be x .

More pumps,

Less working hours per day

(Indirect Proportion)

Less days,

More working hours per day

(Indirect Proportion)

$$\left. \begin{array}{l} \text{Pumps } 4 : 3 \\ \text{Days } 1 : 2 \end{array} \right\} :: 8 : x$$

$$\therefore 4 \times 1 \times x = 3 \times 2 \times 8$$

$$\Leftrightarrow x = \frac{3 \times 2 \times 8}{4} \Leftrightarrow x = 12.$$

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