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Time and work Questions for CDS, CLAT & SSC Exams.

Time and work Quiz 10

Directions: Study the following Questions carefully and choose the right answer:

1. If 4 men or 8 women can do a piece of work in 15 days, in how many days can 6 men and 12 women do the same piece of work?

- A. 45 days B. 15 days C. 30 days D. 5 days

2. 4 goats or 6 sheeps can graze a field in 50 days. 2 goats and 9 sheeps can graze the field in

- A. 100 days B. 75 days C. 50 days D. 25 days

3. If 16 men or 20 women can do a piece of work in 25 days, in what time will 28 men and 15 women do it ?

- A. $14\frac{2}{7}$ days B. $33\frac{1}{3}$ days C. $18\frac{3}{4}$ days D. 10 days

4. Cost of 24 bats and 32 sticks is Rs. 5,600. What is the price of 3 bats and 4 sticks

- A. Rs. 1,400 B. Rs. 2,800 C. Rs. 700 D. Data inadequate

5. A person takes 8 minutes to type a page. If from 1 : 00 pm to 2 : 00 pm, 1710 pages are to be typed, how many persons should be employed for this job?

- A. 207 B. 221 C. 249 D. None of these

6. If 3 men and 4 boys together earn Rs. 264 in 8 days and 2 men and 3 boys together earn Rs. 184 in the same time, then in how many days will 6 men and 7 boys together earn Rs. 315 ?

- A. 5 days B. 6 days C. 9 days D. 10 days

7. 27 people can repair a building in 15 days, working 4 hours a day. In how many days will 20 people, working 9 hours a day, complete the work?

- A. 10 days B. 9 days C. 14 days D. 12 days

8. If 6 women can reap 60 hectares in 24 days, then how many hectares can 36 women reap in 30 days?

A. 300

B. 350

C. 400

D. 450

9. 21 men can do a piece of work in 25 days working 10 hours a day, then how many men are required to complete the work in 15 days by working 7 hours per day?

A. 45 men

B. 47 men

C. 50 men

D. 54 men

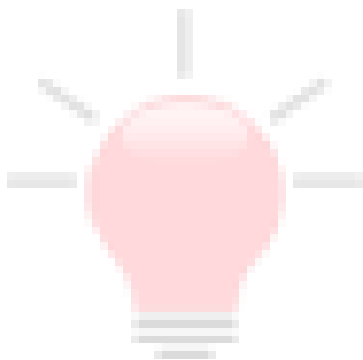
10. In a military camp, the ration was stored for 660 militants at the rate of 800 grams per militant for 45 days. After 10 days some militants came from another camp. As a result the remaining ration got finished only in 15 days at the rate of 1400 grams per militant. Find the number of coming militants. (approx value)

A. 105

B. 220

C. 90

D. 80



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Correct Answers:

1	2	3	4	5	6	7	8	9	10
D	D	D	C	D	A	B	D	C	B

Explanations:

1. 4 men \equiv 8 women

Therefore, 1 men \equiv 2 women

Similarly, 6 men \equiv 12 women

\therefore 6 men + 12 women \equiv 24 women

Now, applying the chain rule formula, we get

$$M_1D_1 = M_2D_2$$

$M_1 = 8$ Women, $D_1 = 15$ days and $M_2 = 24$ Women, $D_2 = ?$

$$D_2 = \frac{8 \times 15}{24} = 5 \text{ days.}$$

Hence, option D is correct.

2. To solve this question, we can apply a short trick approach

$$\text{Required days} = \left[\frac{D(x_1y_1)}{x_2y_1 + x_1y_2} \right]$$

$x_1 = 4$ goats, $y_1 = 6$ sheep and $x_2 = 2$ goats, $y_2 = 9$ sheep

$D =$ the time taken by x_1 and y_1 grazing the field = 50 days

By the short trick approach, we get

$$\text{Required days} = \left[\frac{50(4 \times 6)}{2 \times 6 + 4 \times 9} \right] = \frac{50 \times 24}{12 + 36} = \frac{50 \times 24}{48} = 25 \text{ days.}$$

Second method:

4 goats \equiv 6 sheep

Therefore, 2 goats \equiv 3 sheep

\therefore 2 goats + 9 sheep \equiv 12 sheep

Now, applying the chain rule formula, we get

$$M_1D_1 = M_2D_2$$

$M_1 = 6$ sheep, $D_1 = 50$ days and $M_2 = 12$ sheep, $D_2 = ?$

$$D_2 = \frac{6 \times 50}{12} = 25 \text{ days.}$$

Hence, option D is correct.

3. $16 M \equiv 20 W$

Therefore, 1 men $\equiv \frac{5}{4}$ women

Similarly, 28 men

$$\equiv 28 \times \frac{5}{4} \text{ women} = 35 \text{ women}$$

$\therefore 28 \text{ men} + 15 \text{ women} \equiv 50 \text{ women}$ Now applying the chain rule formula, we get

$$M_1 D_1 = M_2 D_2$$

$M_1 = 20 \text{ women}, D_1 = 25 \text{ days}$ and $M_2 = 50 \text{ women}, D_2 = ?$

$$D_2 = \frac{20 \times 25}{50} = 10 \text{ days}$$

Hence, option D is correct.

4. C.P. of 1 bat and 1 stick is x and y respectively

$$\therefore 24x + 32y = 5600$$

Dividing both sides by 8, we have

$$3x + 4y = 700.$$

Hence, option C is correct.

5. $M_1 T_1 W_2 = M_2 T_2 W_1$

$M_1 = 1, T_1 = 8 \text{ mins}, W_1 = 1 \text{ page}$

$M_2 = ?, T_1 = 60 \text{ min (1 pm to 2pm)}, W_2 = 1710$

$$\therefore M_2 = \frac{1 \times 8 \times 1710}{60 \times 1} = 228$$

Hence, 228 persons should be employed.

Hence, option D is correct.

6. Given, 3 men and 4 boys together earn Rs. 264 in 8 days and 2 men and 3 boys together earn Rs. 184 in the same time

Now, according to the Chain Rule formula,

$$M_1 D_1 W_2 = M_2 D_2 W_1$$

where, M = No. of person, D = No. of days, W = Amount of work

$$\Rightarrow (3M + 4B) \times 8 \times 184 = (2M + 3B) \times 8 \times 264$$

$$\Rightarrow 3M = 7B \quad \dots(i)$$

Let the no. of days 6 men and 7 boys will work together to earn Rs. 315 be x

$$(6M + 7B) \times x \times 184 = (2M + 3B) \times 8 \times 315$$

Substituting the relation between men and boys from equation (i) in above equation,

$$\Rightarrow (14B + 7B) \times x \times 184$$

$$= \left(\frac{14}{3}B + 3B\right) \times 8 \times 315$$

$$\Rightarrow 21B \times x \times 184 = 23B \times 8 \times 105$$

$$\Rightarrow x = 5$$

Thus, the no. of days 6 men and 7 boys will work together to earn Rs. 315 is 5.

Hence, option A is correct.

7. Let the required number of days be z. Then,

Less people, More days (Indirect proportion)

More working hours per day, Less days (Indirect proportion)

$$\left. \begin{array}{l} \text{People } 20 : 27 \\ \text{Hours } 9 : 4 \end{array} \right\} :: 15 : z$$

$$z = \frac{27 \times 4 \times 15}{20 \times 9} = 9 \text{ days.}$$

Hence, option B is correct.

8. Let the required number of hectares be z. Then,

More women, More hectares (Direct proportion)

More days, More hectares (Direct proportion)

$$\left. \begin{array}{l} \text{Women } 6 : 36 \\ \text{Days } 24 : 30 \end{array} \right\} :: 60 : z$$

$$z = \frac{60 \times 36 \times 30}{6 \times 24} = 450 \text{ hectares.}$$

Hence, option D is correct.

9. To solve this question, we can apply the chain rule method

$$M_1 \times D_1 \times H_1 = M_2 \times D_2 \times H_2$$

Given, $M_1 = 21$ men, $D_1 = 25$ days, $H_1 = 10$ hours

$M_2 = ?$, $D_2 = 15$ days, $H_2 = 7$ hours

$$M_2 = \frac{M_1 \times D_1 \times H_1}{D_2 \times H_2}$$

$$= \frac{21 \times 25 \times 10}{15 \times 7} = 50 \text{ men}$$

Hence, option C is correct.

10. Remaining time = $(45 - 10) = 35$ days Present no. of militants = 660

Let the number of coming militants be x.

Then, total militants = $(660 + x)$ If x militants would not come,

660 militants would eat the remaining ration at a rate of 800 gram per militant in 35 days ...(i)

Let $(660 + x)$ militants eat the remaining ration at the rate of 1400 grams per militant in 15 days.

By the chain rule method, we get $M_1 R_1 D_1 = M_2 R_2 D_2$

$$\therefore 660 \times 800 \times 35 = (660 + x) \times 1400 \times 15$$

$$\text{or, } (660 + x) = \frac{660 \times 800 \times 35}{1400 \times 15}$$

$$\text{or, } 660 + x = 880 \text{ or, } x = 880 - 660 = 220.$$

Hence, option B is correct.



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