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

Time and work Quiz 6

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

1. A, B and C can do a piece of work individually in 8, 10 and 15 days, respectively. A and B start working but A quits after working for 2 days. After this, C joins B till the completion of work. In how many days will work be completed?

A. $\frac{53}{9}$ days

B. $\frac{34}{7}$ days

C. $\frac{85}{13}$ days

D. $\frac{53}{10}$ days

2. A can do a piece of work in 'x' days and B can do the same work 3x days. To finish the work together they take 12 days. What is the value of 'x'?

A. 8

B. 10

C. 12

D. 16

3. A and B can do a piece of work in 10 h. B and C can do it in 15 h, while A and C take 12 h to complete the work. B independently can complete the work in

A. 12 h

B. 16 h

C. 20 h

D. 24 h

4. X can do a piece of work in 25 days. Y is 25% more efficient than X. The number of days taken by Y is

A. 15 days

B. 20 days

C. 21 days

D. 30 days

5. A mason can build a tank in 12 h. After working for 6 h, he took the help of a boy and finished the work in another 5 h. The time that the boys will take alone to complete the work is

A. 30 h

B. 45 h

C. 60 h

D. 64 h

6. A can finish a work in 15 days, B in 20 days and C in 25 days. All these worked together and earned Rs. 4700. The share of C is

A. Rs. 1200

B. Rs. 1500

C. Rs. 1800

D. Rs. 2000

7. X can do a work in 16 days. In how many days will the work be completed by Y, if the efficiency of Y is 60% more than that of X?

A. 10 days

B. 12 days

C. 25 days

D. 30 days

8. A, B and C can do a piece of work individually in 8, 12 and 15 days, respectively. A and B start working but A quits after working for 2 days. After this, C joins B till the completion of work. In how many days will the work be completed?

A. $5\frac{8}{9}$ days
B. $4\frac{6}{7}$ days
C. $6\frac{7}{13}$ days
D. $3\frac{3}{4}$ days

9. 4 men, 6 women and 8 children can complete a work in 11 days. A woman does double the work a man does and a child does the half the work a man does. How many women alone can do the same work in 11 days?

A. 8 women
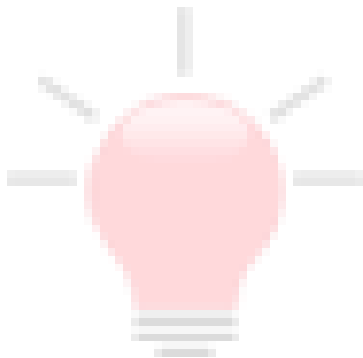B. 10 women
C. 17 women
D. 21 women

10. If 5 men and 7 women can plough a field in 10 days while 20 men and 42 women do the same work in 2 days, find the time taken by 10 men and 15 women to plough the field.

A. 5 days
B. $5\frac{24}{29}$ days
C. 6 days
D. $4\frac{24}{29}$ days

Correct Answers:

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

Explanations:

1. A's and B's 2 day's work

$$= \frac{2}{8} + \frac{2}{10} = \frac{18}{40} = \frac{9}{20}$$

∴ Remaining work

$$= 1 - \frac{9}{20} = \frac{11}{20}$$

Work done by B + C in 1 day

$$= \frac{1}{10} + \frac{1}{15} = \frac{5}{30} = \frac{1}{6}$$

Since, (B + C) finish a work in 6 days.

∵ $\frac{11}{20}$ work together = $6 \times \frac{11}{20}$

$$= \frac{11 \times 3}{10} = \frac{33}{10} \text{days}$$

∵ Total number of days

$$= 2 + \frac{33}{10} = \frac{53}{10} \text{days}$$

Hence, option D is correct.

2.

A's 1 day's work = $\frac{1}{x}$

B's 1 day's work = $\frac{1}{3x}$

A's and B's 1 day's work

$$= \frac{1}{x} + \frac{1}{3x} = \frac{4}{3x}$$

From the given information, we get

$$\Rightarrow \frac{4}{3x} = \frac{1}{12} \Rightarrow x = 16.$$

Hence, option D is correct.

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

B alone will do the same work in

$\left[\dfrac{2xyz}{yz + zx - xy}\right]$ hours.

A and B together finish a piece work = x = 10 hours
B and C together finish a piece work = y = 15 hours
C and A together finish a piece work = z = 12 hours
By the short trick approach: B can do the work in

$= \dfrac{2 \times 10 \times 15 \times 12}{15 \times 12 + 10 \times 12 - 10 \times 15}$ days

After taking 5 as a common term, we get

$= \dfrac{2 \times 2 \times 15 \times 12}{3 \times 12 + 2 \times 12 - 2 \times 15}$ days

$= \dfrac{2 \times 30 \times 12}{36 + 24 - 30}$

$= \dfrac{2 \times 30 \times 12}{30} = 24 \text{ hrs}$

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Traditional Method:

A's and B's 1 h work $= \dfrac{1}{10}$

B's and C's 1 h work $= \dfrac{1}{15}$

and A's and C's 1 h work $= \dfrac{1}{12}$

∴ A's, B's and C's 1 h work

$= \dfrac{1}{2}\left(\dfrac{1}{10} + \dfrac{1}{15} + \dfrac{1}{12}\right)$

$= \dfrac{1}{2}\left(\dfrac{1}{10} + \dfrac{1}{15} + \dfrac{1}{12}\right)$

$= \dfrac{1}{2} \times \dfrac{15}{60} = \dfrac{1}{8}$

Hence, B's work in 1 h

$= \dfrac{1}{8} - \dfrac{1}{12} = \dfrac{1}{24}$

So, B independently can complete the work in 24 h.

Hence, option D is correct.

4.

X's 1 day's work = $\dfrac{1}{25}$

Y's 1 day's work

= X's one day's work × $\dfrac{100 + a}{100}$

Where a is the percentage increase in efficiency.

= $\dfrac{1}{25} \times \dfrac{100 + 25}{100}$

= $\dfrac{125}{25 \times 100} = \dfrac{1}{20}$

Y alone finish the work in 20 days.

Hence, option B is correct.

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5. Work done by Mason in 1 h

= $\dfrac{1}{12}$

Work done by Mason in 6 h

= $\dfrac{6}{12} = \dfrac{1}{2}$

∴ Remaining work

= $1 - \dfrac{1}{2} = \dfrac{1}{2}$

Now, let the boys finish the work in x h
Then, work done by Mason and boy in 1 h

= $\dfrac{1}{12} + \dfrac{1}{x} = \dfrac{x + 12}{12x}$

Then, work done by Mason and boy in 5 h

= $5 \times \dfrac{x + 12}{12x} = \dfrac{1}{2}$

⇒ $\dfrac{5x + 60}{12x} = \dfrac{1}{2}$

⇒ 10x + 120 = 12x ⇒ x = 60 h.
Hence, option C is correct.

6. Ratio of work done by A, B and C

$$= \frac{1}{15} : \frac{1}{20} : \frac{1}{25}$$

= 20 : 25 : 12

Now, ratio in their amount = 20 : 15 : 12

∴ Share of C

$$= \frac{12}{20 + 15 + 12} \times 4700 = \text{Rs. } 1200.$$

Hence, option A is correct.

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7. Y's 1 day's work

$$= \text{X's one day's work} \times \frac{100 + a}{100}$$

Where a is the percentage increase in efficiency.

X's 1 day's work $= \frac{1}{16}$

$$= \frac{1}{16} \times \frac{100 + 60}{100}$$

$$= \frac{160}{16 \times 100} = \frac{1}{10}$$

Y alone finish the work in 10 days.
Hence, option A is correct.

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8. Work done by A and B in 2 days

$$= \frac{2}{8} + \frac{2}{12} = \frac{5}{12}$$

After 2 days A left the work;

∴ Remaining work

$$= 1 - \frac{5}{12} = \frac{7}{12}$$

One day is work of B and C together

$$= \frac{1}{12} + \frac{1}{15} = \frac{9}{60}$$

So, the number of days required by B and C to finish work

$$= \frac{14 / 24}{9 / 60} = \frac{14}{24} \times \frac{60}{9} = \frac{35}{9}$$

∴ Total days to complete the work

$$= 2 + \frac{35}{9} = \frac{53}{9} = 5\frac{8}{9} \text{ days}$$

Hence, option A is correct.

9. 1 woman ≡ 2 men

1 man ≡ 2 children

1 woman ≡ 4 children

i.e. 4 men ≡ $\dfrac{4}{2}$ women = 2 women

8 children ≡ $\dfrac{8}{4}$ = 2 women

are doing work in 11 days.

i.e. no. of women doing work in 11 days = 2 + 6 + 2 = 10 women.

Hence, option B is correct.

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10. (5m + 7w) × 10 = (20m + 42w) × 2

⇒ 50m + 70w = 40m + 84w

⇒ 10m = 14w ⇒ 5m = 7w

Or, 1m = $\dfrac{7}{5}$w

Now, (5m + 7w)

= 5 × $\dfrac{7}{5}$w + 7w = 14 w

Similarly, (10m + 15w)

= 10 × $\dfrac{7}{5}$w + 15w = 29w

Now, apply the chain rule method,

$M_1D_1 = M_2D_2$

M_1 = 14, M_2 = 29w, D_1 = 10 days, D_2 = ?

14 × 10 = 29 × ?

? = $\dfrac{140}{29}$days = $4\dfrac{24}{29}$days

Hence, option D is correct.