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

Time and work Quiz 3

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

1. A and B together can complete a piece of work in 12 days, B and C can do it in 20 days and C and A can do it in 15 days. A, B and C together can complete it in

A. 12 days B. 6 days C. 8 days D. 10 days

2. A works alone, he would take 4 days more to complete the job than if both A and B worked together. If B worked alone, he would take 16 days more to complete the job than if both A and B work together. How many days would they take to complete the work if both of them worked together?

A. 10 days B. 12 days C. 6 days D. 8 days

3. 'A' can do a piece of work in 20 days and 'B' can do the same work in 15 days. How long will they take to finish the work, if both work together?

A. 15 days B. 10 days C. $8\frac{4}{7}$ days D. 20 days

4. Ashokan is thrice as good a workman as Nitin and is therefore able to finish a piece of work in 40 days less than Nitin. Find the time in which they can do it working together.

A. 15 days B. 7 days C. 16 days D. 13 days

5. A completes a piece of work in 4 days and B completes it in 6 days. If they both work on it together, then the number of days required to complete the same work is

A. $3\frac{5}{2}$ days B. $2\frac{4}{10}$ days C. $2\frac{2}{5}$ days D. $3\frac{2}{5}$ days

6. A can complete a piece of work in 12 days. B is 60% more efficient than A. The number of days, that B will take to complete the same work is

A. 6 B. $7\frac{1}{2}$ C. 8 D. $8\frac{1}{2}$

7. A can do the piece of work in 20 days which B can do in 12 days. B worked at it for 9 days. A can finish the remaining work in

A. 5 days B. 7 days C. 11 days D. 3 days

8. A and B together can do a work in 10 days. B and C together can do the same work in 6 days. A and C together can do work in 12 days. Then A, B and C together can do the work in

A. 28 days
B. 14 days
C. $5\frac{5}{7}$ days
D. $8\frac{2}{7}$ days

9. 2 men and 4 boys can do a piece of work in 10 days, while 4 men and 5 boys can do it in 6 days. Men and Boys are paid wages according to their output. If the daily wage of a man is Rs. 40, then the ratio of daily wages of a man and a boy will be

A. 5 : 3
B. 5 : 2
C. 7 : 4
D. 7 : 3

10. If A and B together can finish a piece of work in 20 days, B and C in 10 days and C and A in 12 days, then A, B, C jointly can finish the same work in

A. $4\frac{2}{7}$ days
B. 30 days
C. $8\frac{4}{7}$ days
D. $\frac{7}{60}$ days

Correct Answers:

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

Explanations:

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

If A and B can do a piece of work in x days, B and C in y days, C and A in z days, then (A + B + C) working together will do the same work in

$\left[\frac{2xyz}{xy + yz + zx}\right]$ days

A and B together finish a piece work = x = 12 days

B and C together finish a piece work = y = 20 days

C and A together finish a piece work = z = 15 days

By the short trick approach :

A, B and C can do the work in

$= \frac{2 \times 12 \times 20 \times 15}{12\times20 + 20\times15 + 15\times12}$ days

After taking 20 as a common term we get,

$= \frac{2 \times 12 \times 15}{12 + 15 + 9}$ days

After taking 3 as a common term we get,

$= \frac{2 \times 4 \times 15}{4 + 5 + 3}$ days $= \frac{120}{12} = 10$ days

Hence, option D is correct.

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

If A working alone takes 'x' days more than A and B, and B working alone takes 'y' days more than A & B together then the number of days taken by A & B working together is given by [$\sqrt{xy}$] days.

A's time = x = 4 days

B's time = y = 16 days

By the short trick approach:

$= \sqrt{4 \times 16} = \sqrt{64} = 8$ days.

Hence, option D is correct.

3. To solve this question, we can apply a short trick approach;
If A can do a piece of work in x days and B can do it in y days then A and B working together will do the same work in work in

$\left(\frac{xy}{x + y}\right)$ days.

A's time = x = 20 days
B's time = y = 15 days
By the short trick approach:
A + B can do the work in $\frac{20 \times 15}{20 + 15}$ days

$= \frac{300}{35} = \frac{60}{7} = 8\frac{4}{7}$ days

Hence, option C is correct.

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4. To solve this question, we can apply a short trick approach;
If A is 'n' times as fast (or slow) as B, and is therefore able to finish a work in 'D' days less (or more) than B, then the time in which they can do it working together is given by

$\left(\frac{Dn}{n^2 - 1}\right)$ days

Given:
Ashokan's days less then Nitin = D = 40 days
Ashokan is 3 times as fast as Nitin = n = 3.
By the short trick approach:
we have the Required answer
$= \frac{40 \times 3}{3^2 - 1} = \frac{40 \times 3}{8} = 15$ days

Hence, option A is correct.

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5. To solve this question, we can apply a short trick approach;
If A can do a piece of work in x days and B can do it in y days then A and B working together will do the same work in

$\left(\frac{xy}{x + y}\right)$ **days.**

A's time = x = 4 days
B's time = y = 6 days
By short trick approach:
A + B can do the work in $\frac{4 \times 6}{4 + 6}$ days

$= \frac{24}{10} = 2\frac{2}{5}$ days
Hence, option C is correct.

6. Kindly refer to the video for short-trick approach or go through the solution given below.
Ratio of their efficiency
= 100 : 160 = 5 : 8
∴ Ratio of time taken = 8 : 5
∴ Time taken by B
$= 12 \times \frac{5}{8} = \frac{15}{2} = 7\frac{1}{2}$ days

Hence, option B is correct.

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7. To solve this question, we can apply a short trick approach;
If A and B can do a work in x and y days respectively, and B leaves the work after doing for 'a' days then A does the remaining work in
$\left[\frac{(y-a)x}{y}\right]$ days

Given:
Time taken by A = x = 20 days.
Time taken by B = y = 12 days
Leaving time of work by B = a = 9 days
By the short trick approach,
A does the remaining work
$= \left[\frac{(12-9)20}{12}\right]$ days

$= \frac{20}{4} = 5$ days

Hence, option A is correct.

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8. To solve this question, we can apply a short trick approach;
If A and B can do a piece of work in x days, B and C in y days, C and A in z days, then (A + B + C) working together will do the same work in
$\left[\frac{2xyz}{xy + yz + zx}\right]$ days

Given:
A and B together finish a piece work = x = 10 days
B and C together finish a piece work = y = 6 days
C and A together finish a piece work = z = 12 days
By the short trick approach:
A, B and C can do the work in
$= \frac{2 \times 10 \times 6 \times 12}{10 \times 6 + 6 \times 12 + 12 \times 10}$ days
After taking 6 as a common term we get,
$= \frac{2 \times 10 \times 12}{10 + 12 + 20}$ days

After taking 2 as a common term we get,

$= \frac{120}{5 + 6 + 10}\text{days} = \frac{120}{21} = \frac{40}{7} = 5\frac{5}{7}\text{days}$

Hence, option C is correct.

9. Men = m; Boys = b.

From the given information,

$(2m + 4b) \times 10 \equiv (4m + 5b) \times 6$

$\Rightarrow 20m + 40b \equiv 24m + 30b$

$\Rightarrow 4m \equiv 10b$

$\Rightarrow 2m \equiv 5b$

$\therefore 5b = 2 \times 40$

$\Rightarrow 1b = \frac{2 \times 40}{5} = 16$

$\therefore$ Required ratio = 40 : 16 = 5 : 2

Hence, option B is correct.

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

If A and B can do a piece of work in x days, B and C in y days, C and A in z days, then (A + B + C) working together will do the same work in

$\left[\frac{2xyz}{xy + yz + zx}\right]$ days

Given:

A and B together finish a piece work = x = 20 days

B and C together finish a piece work = y = 10 days

C and A together finish a piece work = z = 12 days

By the short trick approach:

A, B and C can do the work in

$= \frac{2 \times 20 \times 10 \times 12}{20 \times 10 + 10 \times 12 + 12 \times 20}$ days

After taking 40 as a common term we get,

$= \frac{10 \times 12}{5 + 3 + 6}\text{days} = \frac{120}{14} = 8\frac{4}{7}$ days

Hence, option C is correct.