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

Time and distance Quiz 2

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

1. How many minutes does Mayank take to cover a distance of 400 m, If he runs at speed of 20 km/hr?

A. $1\frac{1}{5}$ min.

B. $1\frac{2}{5}$ min.

C. $2\frac{2}{5}$ min.

D. $2\frac{3}{5}$ min.

2. A cyclist covers a distance of 750 m in 2 min 30 sec. what is the speed in km /hr of the cyclist ?

A. 12 km/hr

B. 15 km/hr

C. 18 km / hr

D. 20 km / hr

3. A Jackal takes 4 leaps for every 5 leaps of goat but 3 leaps of a Jackal are equal to 4 leaps of the goat. Compare their speeds

A. 12 : 10

B. 7 : 5

C. 1 : 4

D. 16 : 15

4. While covering a distance of 24 km, a man noticed that after walking for 1 hour and 40 minutes, the distance covered by him was 5/7 of the remaining distance. What was his speed in meters per second?

A. $2\frac{4}{3}$ m/sec.

B. $2\frac{4}{7}$ m/sec.

C. $1\frac{2}{3}$ m/sec.

D. $2\frac{4}{7}$ m/sec.

5. A boy travelled from the home to the college at the rate of 25 kmph and walked back at the rate of 4 kmph. If the whole journey took 5 hours 48 minutes, Find the distance of the college from the home.

A. 5 km

B. 10 km

C. 15 km

D. 20 km

6. An aeroplane flies along the four sides of a square at the speeds of 200, 400, 600 and 800 km/hr . Find the average speed of the plane around the field.

A. 384 km/hr

B. 375 km/hr

C. 432 km/hr

D. 221 km/hr

7. Running at 5/6 of its usual speed, a train is 10 minutes too late. Find its usual time to cover the journey.

A. 10 min

B. 20 min

C. 40 min

D. 50 min

8. If man walks at the rate of 5 kmph, he misses a train by 7 minutes. however, if he walks at the rate of 6 kmph , he reaches the station 5 minutes before the arrival of the train, find the distance covered by him to reach the station.

A. 2 km   B. 4 km   C. 5 km   D. 6 km

9. A and B are two stations 390 km apart. A train starts from A at 10 a.m. and travels towards B at 65 kmph. Another train starts from B at 11 a.m. and travels towards A at 35 kmph. At what time do they meet?

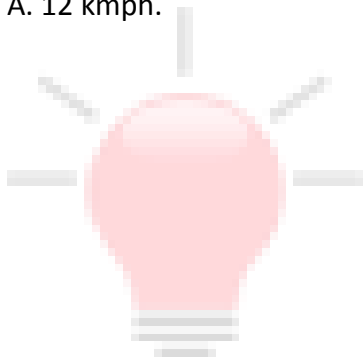A. at 1.26 p.m.   B. at 3.23 p.m.   C. at 2.15 p.m.   D. at 4.15 p.m.

10. A goods train leaves a station at a certain time and at a fixed speed. After 6 hours, an express train leaves the same station and moves in the same direction at a uniform speed of 90 kmph, this train catches up the goods train in 4 hours. Find the speed of the goods train.

A. 12 kmph.   B. 24 kmph   C. 36 kmph   D. 42 kmph

Correct Answers:

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

Explanations:

1. Mayank's speed = 20 km /hr

$= \left(20 \times \dfrac{5}{18}\right)$ m/sec $= \dfrac{50}{9}$ m/sec.

So, time taken to cover 400 m

$= \left(400 \times \dfrac{9}{50}\right)$ sec $\Rightarrow$ 72 sec $\Rightarrow 1\dfrac{12}{60}$ min $\Rightarrow 1\dfrac{1}{5}$ min.

Hence, option A is correct.

2. By applying a formula,

Speed $= \dfrac{\text{Distance}}{\text{Time}}$. Then,

Speed $= \left[\dfrac{750}{150}\right]$ m/sec = 5m/sec

$= \left[5 \times \dfrac{18}{5}\right]$ km/hr $\Rightarrow$ 18 km / hr.

Hence, option C is correct.

3. Let the distance covered in 1 leap of the jackal be x and that covered in 1 leap of the goat be y.

Then, $3x = 4y \Rightarrow x = \dfrac{4}{3}y \Rightarrow 4x = \dfrac{16}{3}y$.

So, Ratio speed of jackal and goat = Ratio of distances covered by them in the same time,

$\Rightarrow 4x : 5y = \dfrac{16}{3}y : 5y \Rightarrow \dfrac{16}{3} : 5 = 16 : 15$.

Hence, option D is correct.

4. Let the speed be x km/hr.

Then, distance covered in 1 hr. 40 min.

i.e , $1\frac{2}{3}$ hrs = $\frac{5x}{3}$ km.

Remaining distance

= $\left(24 - \frac{5x}{3}\right)$ Km.

So, $\frac{5x}{3} = \frac{5}{7}\left(24 - \frac{5x}{3}\right)$

⇒So, $\frac{5x}{3} = \frac{5}{7}\left(\frac{72 - 5x}{3}\right)$

⇒ 7x = 72 − 5x
⇒ 12x = 72 ⇔ x = 6
Hence, speed = 6 km/hr

= $\left(6 \times \frac{5}{18}\right)$ m/sec ⇒ $\frac{5}{3}$ m/sec

⇒ $1\frac{2}{3}$ m/sec.

Hence, option C is correct.

5.

Average speed = $\left(\frac{2xy}{x + y}\right)$ km/hr

= $\left(\frac{2 \times 25 \times 4}{25 + 4}\right)$ km/hr

= $\frac{200}{29}$ km/hr.

Distance travelled in 5 hours 48 minutes i.e, $5\frac{4}{5}$ hrs

= $\left(\frac{200}{29} \times \frac{29}{5}\right)$ km = 40 km.

So, Distance of the college from the home

= $\left(\frac{40}{2}\right)$ = 20 km.

Hence, option D is correct.

6. Let each side of square be 1 km and the average speed of the plane around the field be x km/hr. then,

$$\frac{1}{200} + \frac{1}{400} + \frac{1}{600} + \frac{1}{800} = \frac{4}{x}$$

$$\Rightarrow \frac{25}{2400} = \frac{4}{x} \Leftrightarrow x = \left(\frac{2400 \times 4}{25}\right) \Rightarrow 384.$$

So, average speed = 384 km/hr.
Hence, option A is correct.

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7. Method I:

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

Reqd. time = $\left[\dfrac{\text{Change in time}}{\left(\dfrac{b}{a} - 1\right)}\right]$ **mins.**

Given,

Speed = $\dfrac{a}{b} = \dfrac{5}{6}$; so, $\dfrac{b}{a} = \dfrac{6}{5}$

Change in time = 10 minutes
By the short trick approach, we get

$$= \left[\frac{10}{\left(\frac{6}{5} - 1\right)}\right] \text{mins}$$

$$= \frac{10 \times 5}{6 - 5} = 50 \text{ minutes.}$$

Method II:
New speed

$= \dfrac{5}{6}$ of the usual speed

So, new time taken

$= \dfrac{6}{5}$ of the usual time

So, $\left(\dfrac{6}{5} \text{ of the usual time}\right) - (\text{usual time}) = 10$ min.

$\Rightarrow \dfrac{1}{5}$ of the usual time = 10 min $\Rightarrow$ usual time = 50 min.

Hence, option D is correct.

**8.** Let the required distance be x km.

Difference in time taken at two different speeds = 12 min $\Rightarrow \frac{1}{5}$hr.

So, $\frac{x}{5} - \frac{x}{6} = \frac{1}{5}$ $\Leftrightarrow$ 6x − 5x = 6 $\Leftrightarrow$ x = 6.

Hence, the required distance is 6 km.
Point to remember: If a person in 1st scenario reaches a point, for instance, 15 min late and in the 2nd scenario he reaches the same point 15 min early, the time difference will always be the sum of both the time periods.

1st Scenario
at 9:15 am

2nd Scenario
at 8:45 am

Time difference = 30 min
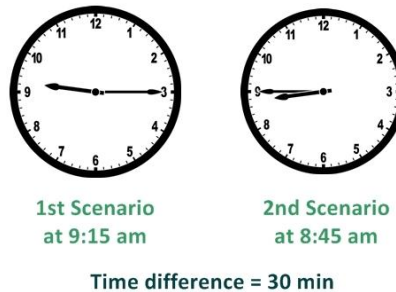
Time difference = 15 + 15 = 30 min
Hence, option D is correct.

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9. Suppose they meet x hours after 10 a.m. then,
(Distance moved by first in x hrs) + [Distance moved by second in (x − 1) hrs] = 390.
Here the first train is starting at 10 am while the second train is starting at 11 am which means the second train has to travel 1 hour less to meet the first train. That's why the time taken here for the second train is (x − 1) hrs.
So, 65x + 35 (x − 1) = 390 $\Rightarrow$ 100x = 425

$x = 4\frac{1}{4}$.

So, they meet 4 hrs. 15 min. after 10 a.m. i.e, at 2.15 p.m.
Hence, option C is correct.

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10. Let the speed of the goods train be x kmph.
Distance covered by goods train in 10 hrs = Distance covered by express train in 4 hrs
So, 10x = 4 × 90 or x = 36.
So, Speed of goods train = 36 kmph.
Hence, option C is correct.