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

### Time and distance Quiz 5

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

1. A man can walk uphill at the rate of 2.5 km/h and downhill at the rate of 3.25 km/h. If the total time required walking a certain distance up the hill and return to the starting position is 4 h 36 min, what is the distance he walked up the hill?

- A. 3.5 km                      B. 4.5 km                      C. 5.5 km                      D. 6.5 km

2. A car is travelling at a constant rate of 45 km/h. The distance travelled by car from 10 : 40 am to 1 : 00 pm is

- A. 165 km                      B. 150 km                      C. 120 km                      D. 105 km

3. A person travels a certain distance at 3 km/hr and reaches 15 min late. If he travels at 4 km/hr, he reaches 15 min earlier. The distance he has to travel is

- A. 4.5 km                      B. 6 km                      C. 7.2 km                      D. 12 km

4. If a body covers a distance at the rate of  $x$  km/h and another equal distance at the rate of  $y$  km/h, then the average speed (in km/h) is

- A.  $\frac{x+y}{2}$                       B.  $\sqrt{x}$                       C.  $\frac{x+y}{xy}$                       D.  $\frac{2xy}{x+y}$

5. A father and his son start at a point A with speeds of 12 km/h and 18 km/h respectively and reach another point B. If his son starts 60 min after his father at A and reaches B, 60 min before his father, what is the distance between A and B?

- A. 90 km                      B. 72 km                      C. 36 km                      D. None of these

6. Two men P and Q start from a place walking at 5 km/h and 6.5 km/h, respectively. What is the time they will take to be 92 km apart, if they walk in opposite directions?

- A. 2 h                      B. 4 h                      C. 6 h                      D. 8 h

7. A wheel of radius 2.1 m of vehicle makes 75 revolutions in 1 min. what is the speed of the vehicle?

- A. 78 km/hr                      B. 59.4 km/hr                      C. 37.4 km/hr                      D. 35.4 km/hr

8. A man cycles with a speed of 10 km/h and reaches his offices at 1 pm. However, when he cycles with a speed of 15 km/h, he reaches his office at 11 am. At what speed should he cycle, so that he reaches his office at 12 noon?

A. 12.5 km/hr

B. 12 km/hr

C. 13 km/hr

D.  $13/5$  km/hr

9. Two cars A and B start simultaneously from a certain place at the speed of 30 km/h and 45 km/h, respectively. The car B reaches the destination 2 h earlier than A. what is the distance between the starting point and destination?

A. 90 km

B. 180 km

C. 270 km

D. 360 km

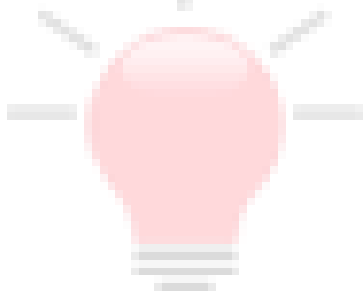
10. A man covers a total distance of 100 km on bicycle. For the first 2 hours, the speed was 20 km/hr and for the rest of the journey, it came down to 10 km/hr. The average speed will be

A. 12.5 km/hr

B. 13 km/hr

C.  $15\frac{1}{8}$  km/hr

D. 20 Km/hr



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**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
D	D	B	D	B	D	B	B	B	A

**Explanations:**

1. Let the walked up at a distance of x km. then

$$\frac{x}{2.5} + \frac{x}{3.25} = 4\frac{36}{60}$$

$$\Rightarrow \frac{10x}{25} + \frac{100x}{325} = 4\frac{3}{5}$$

$$\Rightarrow \frac{130x + 100x}{325} = \frac{23}{5}$$

$$\Rightarrow \frac{230x}{325} = \frac{23}{5}$$

$$\Rightarrow 10x = 65 \Rightarrow x = 6.5 \text{ km}$$

Hence, option D is correct.

2. Let the distance be x km.

And time taken by car = 2hr 20 mins

$$= 2\frac{20}{60} = 2\frac{1}{3} = \frac{7}{3} \text{ hrs}$$

Distance = Speed × Time

$$= \frac{7}{3} \times 45 = 105 \text{ km.}$$

Hence, option D is correct.

3. Let the distance be x and the difference between time taken =  $15 - (-15) = 30 \text{ mins} = \frac{1}{2} \text{ hr.}$

Time taken when travelled at 3 km/hr (slower) – Time taken when travelled at 4 km/hr (faster) = Difference in time =  $\frac{1}{2} \text{ hr}$

$$\frac{x}{3} - \frac{x}{4} = \frac{1}{2}$$

$$\Rightarrow \frac{4x - 3x}{12} = \frac{1}{2} \Rightarrow x = 6 \text{ km.}$$

Hence, option B is correct.

4. Let the distance be 1 Km. then,

$$\text{Average speed} = \frac{\text{Total distance travelled}}{\text{Total time taken}}$$

$$= \frac{1 + 1}{\left(\frac{1}{x} + \frac{1}{y}\right)}$$

$$= \frac{2}{\left(\frac{x+y}{xy}\right)}$$

$$= \frac{2xy}{x+y}$$

Hence, option D is correct.

5. Let the distance be  $x$  and the difference in time taken by the father and the son =  $60 + 60 = 120$  mins = 2 hrs. (The son reaches 2 hours faster than the father.)

Time taken by the father – Time taken by the son = 2 hours

$$\frac{x}{12} - \frac{x}{18} = 2$$

$$\Rightarrow \frac{3x - 2x}{36} = 2 \Rightarrow x = 72 \text{ km}$$

Hence, option B is correct.

6. Given,

Distance = 92 km, Relative Speed =  $5 + 6.5 = 11.5$  km/h

$$\therefore \text{Reqd. Time} = \frac{\text{Distance}}{\text{Relative speed}} = \frac{92}{11.5} = 8 \text{ h}$$

Hence, option D is correct.

7. Radius of the wheel = 2.1 m and time taken to do given number of revolutions = 1 min = 1/60 hr

Distance covered in 1 revolution =  $2\pi r$

$$= 2 \times \frac{22}{7} \times 2.1$$

Distance covered in 75 revolutions;

$$= 75 \times 2 \times \frac{22}{7} \times 2.1$$

$$= 990 \text{ m} = 0.99 \text{ km}$$

$$\text{Reqd. speed} = \frac{0.99}{1/60} = 59.4 \text{ km/h}$$

Hence, option B is correct.

8. Let the distance be x km. then,

Time taken by slower train – Time taken by faster train = Difference in time

$$\frac{x}{10} - \frac{x}{15} = 1 \text{ pm} - 11 \text{ am}$$

$$\Rightarrow \frac{3x - 2x}{30} = 2 \Rightarrow x = 60 \text{ km}$$

At 10 km/hr speed a man takes 6 hr and reach at 1 pm

At 15 km/hr speed a man takes 4 hr and reach at 11 am

Similarly, to reach the destination at 12 pm (the mid value of the given points of time) he will take 5 hrs (the mid value of given periods of time).

So, the speed of the person

$$= \frac{60}{5} = 12 \text{ km/hr}$$

Hence, option B is correct.

9. Let the distance be x km. then,

Time taken by the slower car – Time taken by the faster car = 2 hours

$$\frac{x}{30} - \frac{x}{45} = 2$$

$$\Rightarrow \frac{3x - 2x}{90} = 2 \Rightarrow x = 180 \text{ km.}$$

Hence, option B is correct.

**10.** Distance covered in 1<sup>st</sup> 2 hours =  $2 \times 20 = 40$  km

∴ Remaining distance =  $100 - 40 = 60$  km

Speed in the rest of the journey = 10 km/hr

Time taken in the rest of the journey

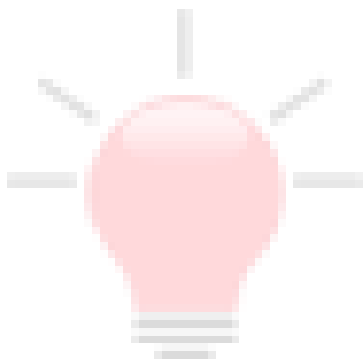
$$= \frac{60}{10} = 6 \text{ hours}$$

∴ Average speed

$$= \frac{\text{Total Distance}}{\text{Total Time}} = \frac{100}{2 + 6} = \frac{100}{8}$$

$$= 12.5 \text{ km/hr}$$

Hence, option A is correct.



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