

Time Speed and Distance

Questions for CLAT

Type 1 - Basic Time Speed and Distance Questions for CLAT

Now, we will discuss the most frequently used concept in this chapter, i.e. questions based on the unit conversion. To learn this concept, we need to know how these Time Speed and Distance Questions for CLAT are framed in the question paper.

Question: A train runs at X km/hr, and it takes 18 seconds to pass a pole. The length of the train is 180m. Find the speed of the train in km/hr.

Solution:

Speed = distance / Time,

Therefore,

$$S = 180\text{m}/18\text{s} = 10\text{m/s}$$

Now we need the answer in km/hr, and for that, we will multiply the given speed with $(18/5)$ in order to get the answer in km/h

Therefore, $S = 10 * (18/5) = 36\text{km/h}$.

So here the trick for the same is:

- Convert metre per second (m/sec) to km per hr (km/h)
For converting (meter per second) to (kilometre per hour) we use the following formula: $\text{m/sec} = S * (18/5) \text{ km/h}$
- Convert km per hr (km/h) to metre per second (m/sec)
For converting kph(kilometre per hour) to MPs(meter per second) we use the following formula: $S \text{ km/hr} = (s * 5/18) \text{ m/sec}$

Question: A boy covers a distance of 600m in 2min 30sec. What will be the speed in km/hr?

Solution: Speed = Distance / Time = Distance covered = 600m, Time is taken = 2min 30sec = 150sec

Therefore, Speed = $600 / 150 = 4 \text{ m/sec} = 4\text{m/sec} = (4 * 18/5) \text{ km/hr} = 14.4 \text{ km/hr}$

Type 2 - Relative Speed CLAT Speed Time and Distance Questions

Considering 2 objects A and B having the speed x , y .

- If the ratio of the speeds of A and B is $x:y$, then the ratio of the times taken by them to cover the same distance is: $1/x: 1/y$ or $y: x$

Question: The ratio of the speed of a bike and a motor is 4:5 then what will be the ratio for the time taken by both the vehicles for the same destination?

Solution:

As the destination is the same so distance will be the same for both Car and bike.

Let the Distance be d ,

And the speeds for both the vehicles be $4s$ and $5s$

Now, $t_1 = d/4s$ ----(1)

$t_2 = d/5s$ ----(2)

so, $t_1/t_2 = 5/4 = 5:4$

Type 3 - Average Time Speed and Distance Questions for CLAT

Average Speed is another very important concept. It is defined as Total Distance Travelled / Total Time Taken

Question: Dewansh travels 320 km at 64 km/hr and returns at 80 km/hr. Calculate the average speed of Dewansh.

Solution:

We know that speed = Distance/ time taken

$$\Rightarrow \therefore \text{Total time taken} = 320/64 + 320/80 = 9$$

$$\Rightarrow \text{Average Speed} = (320 + 320)/9$$

$$\Rightarrow \text{Average speed} = 71.11 \text{ km/hr}$$

Question: A car moving with a uniform speed of 50km/h covers half the distance with this speed. Half of the time of the remaining distance is covered with a speed of 35km/h and the other half time at 10km/h. If the total distance travelled is 90 km then What was the car's average speed (approximately) during his entire journey?

Solution:

Half of total distance = 45km, Speed = 50km/h

$$\text{Time taken} = 45\text{km}/50 = 0.9 \text{ hr} = 0.9 \times 60 = 54 \text{ minutes}$$

Let time taken for remaining 45 km be T

And, distance via speed 10km/hr by D

$$\text{Then, ATQ, } T/2 = (45 - D) / 35 \dots(1)$$

$$\text{And, } T/2 = (D) / 10 \dots(2)$$

Equating equations 1 & 2,

$$(45 - D) / 35 = (D) / 10$$

$$10(45 - D) = 35D$$

$$45D = 450 \text{ or,}$$

$$D = 10 \text{ km, } T = 2 \text{ hour}$$

$$\text{Total time} = 2 + 0.9 = 2.9 \text{ hours}$$

$$\text{Average speed} = 90/2.9 = 31 \text{ km/hr}$$

Type 4: Suppose a Person covers a certain distance at x km/hr and an equal distance at y km/hr.

Then, the average speed for the complete Journey: $2xy/(x + y)$

Question: A train goes from Ballygunge to Sealdah at an average speed of 20 km/hour and comes back at an average speed of 30 km/hour. The average speed of the train for the whole journey is?

Solution:

Let x and y be the average speed for the same distance at two different times.

$$\text{Then, average speed} = (2xy)/(x + y)$$

A train goes from Ballygunge to Sealdah at an average speed of 20 km/hour and comes back at an average speed of 30 km/hour.

$$\text{The average speed of the train} = (2 \times 20 \times 30)/(20 + 30) = 24 \text{ km/hr}$$

Question: A boy goes to school at a speed of 3 km per hr and returns to the village at a speed of 2 km per hr. If he takes 5 hrs in all, what is the distance between the village and the school?

Solution:

Let the required distance be x km.

Then time taken during the first journey = $x/3$ hr.

and time taken during the second journey = $x/2$ hr.

$$x/3 + x/2 = 5 \Rightarrow (2x + 3x) / 6 = 5$$

$$\Rightarrow 5x = 30.$$

$$\Rightarrow x = 6$$

Required distance = 6 km.