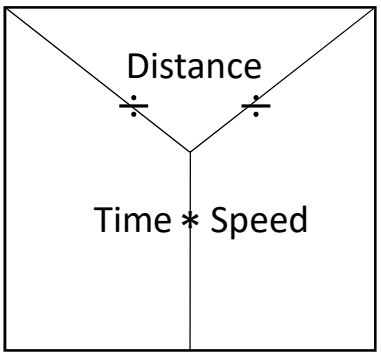
Time Speed and Distance

Concepts:

Basic Formulae:



- Speed = Distance / Time
- Distance = Speed * Time
- Time = Distance / Speed
- If an object covers equal distance with speed x km/hr and y km/hr: Avg. Speed= $\frac{2xy}{x+y}$ km/hr

Important Conversion:

1 km = 1000 meters
1 hour = 60 minutes
1 min = 60 seconds
1 hours = 3600 seconds

1 km/hr = $\frac{5}{18}$m/sec

1 m/sec = $\frac{18}{5}$km/hr

Questions:

I. Calculate any one parameter when other two are given;

1. A man walking with the speed of 5 km/h crosses the bridge in 15 minutes. What is the length of the bridge ?
   a. 600m
   b. 750m
   c. 1000m
   d. 1250m

2. Speed of car is 108kmph. What will be the distance covered in 15 sec?
   a. 45m
   b. 55m
   c. 450m
   d. None of the above

3. How long will a boy take to run around a square field of side 35m with the speed of 9km/h

   a. 50 sec

   b. 52 sec

   c. 54 sec

   d. 56 sec

4. If an athlete runs 200m in 24 sec, what is his speed?

   a. 20 km/h

   b. 24 km/h

   c. 30 km/h

   d. 28.5 km/h

5. A man can see 21 telephone posts in one minute while in a train. If they are placed 50 mtrs apart, what is the speed of the train?

   a. 60 km/h

   b. 62 km/k

   c. 66 km/h

   d. 54 km/h

II. Any one parameter is constant;

1. Walking at the rate of 4 kmph a man cover certain distance in 2 hr 45 min. Running at a speed of 16.5 kmph the man will cover the same distance in.

   a. 12 min

   b. 25 min

   c. 40 min

   d. 60 min

2. A train covers a distance in 100 min, if it runs at a speed of 48kmph on an average. The speed at which the train must run to reduce the time of journey to 40 min will be:

   a. 30 kmph

   b. 40 kmph

   c. 120 kmph

   d. 60 kmph

3. A train covers a certain distance at a speed of 60 kmph in 20 hours. To cover the same distance in 3 hours, It must travel at the speed of

   a. 360 kmph

   b. 400 kmph

   c. 440 kmph

   d. 480 kmph

4. A is moving with the speed of 1 m/s and B with 4 m/s. If B covers the distance in 20 mins, A will cover the same distance in:

   a. 10 min

   b. 40 min

   c. 70 min

   d. 80 min

5. A train when moves with the speed of 25 kmph it reaches its destination 15 minutes late. While if it runs with the speed of 40 kmph, then it reaches on time. Find the length of journey.

   a. 20 km

   b. 30 km

   c. 16.6 km

   d. 60 km

6. If a man walks at five-sixth of his usual speed by which he walks towards his office, he found out that he is 20 minutes too late. Find his usual speed to cover the distance between his home and office?

   a. 80 min

   b. 100 min

   c. 120 min

   d. 140 min

7. A man travels at the speed of 5 kmph towards the office and comes back at the speed of 8 kmph. If it takes him 13 hours for going to and coming back from office. How far is office from the home?

   a. 60 min

   b. 40 min

   c. 50 min

   d. 120 min

8. A Motorboat covers a certain distance at a speed of 45 kmph in 10 hours. To cover the same distance in 15 hours, It must travel at the speed of

   a. 20 kmph

   b. 40 kmph

   c. 50 kmph

   d. 30 kmph

9. Two dogs start from same place run at the speed of 5 km per hour and 5.5 km per hour. What time would they take to be 17 km apart, if they walk in same direction?

   a. 24 hrs

   b. 29 hrs

   c. 34 hrs

   d. 38 hrs

10 At the speed of 60 kmph, a car can finish a journey in 10 hr. To cover the same distance in 6 hr, the speed must be increased by

a. 100 kmph

b. 40 kmph

c. 70 kmph

d. 120 kmph

11 A thief is potted by an NYPD cop from a distance 200 m. When the cop starts following the thief he starts running. If speed of the thief be 6 kmph and that of a cop be 8 kmph, how far the thief will have run before he is overtaken?

a. 800m

b. 600m

c. 1200m

d. 1000m

12 A car takes 8hrs to travels from point A to B. If the speed was increased by 4 kmph, it can cover the distance in $7\frac{1}{2}$ hrs. What is the distance between point A and B?

a. 400m

b. 480m

c. 540m

d. 475m

13 If a train travels at 40 kmph, it reaches the station 11 minutes late. If it travels at 50 kmph, it reaches 5 minutes late. Find the distance it needs to travel

a. 10 mins

b. 27 mins

c. 19 mins

d. 17 mins

14 If a man walks $\frac{6}{7}$ times his usual speed, he is 12 minutes late. Find the usual time he takes to travel same distance.

a. 1hr

b. 1hr 6min

c. 1hr 12min

d. 1hr 18min

15 A travels with the speed of 5 kmph. B with 5.5kmph. After what time will the be 8.5 km apart?

a. 16hr 40min

b. 16hr 50min

c. 17hr 00min

d. 17hr 10min

III. Average Speed

1 A, B, C are on a trip by car. A drives for first one hr with average speed of 50kmph. B drives for next 2hr with average speed of 48kmph. C drives for next 3hr with average speed of 52 kmph. They reached the destination after 6 hrs of total journey. Find average speed.

a. 50 kmph

b. $50\frac{1}{3}$ kmph

c. $51\frac{1}{3}$ kmph

d. 51 kmph

2 A man travels 10km at 12kmph and next 12 km at 10kmph. Approx. average speed is:

a. 10.4 kmph

b. 10.8kmph

c. 11kmph

d. 12.2 kmph

3 A man travels 160km at 64kmph and next 160 km at 80kmph. Average speed is:

a. 35.55 kmph

b. 35 kmph

c. 71.11kmph

d. 71 kmph