

# GOUR INSTITUTE

PSC, Bank (Clerk/PO), SSC, Railways, S.I., Classes

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F – 12, City Bazar, Thatipur, Gwalior (M.P.) [www.gourinstitute.in](http://www.gourinstitute.in)

## TIME AND DISTANCE

### INTRODUCTION

#### 1. Speed, Time and Distance:

$$\text{Speed} = \left( \frac{\text{Distance}}{\text{Time}} \right), \text{Time} = \left( \frac{\text{Distance}}{\text{Speed}} \right), \text{Distance} = (\text{Speed} \times \text{Time}).$$

#### 2. km/hr to m/sec conversion:

$$x \text{ km/hr} = \left( x \times \frac{5}{18} \right) \text{ m/sec.}$$

#### 3. m/sec to km/hr conversion:

$$x \text{ m/sec} = \left( x \times \frac{18}{5} \right) \text{ km/hr.}$$

4. If the ratio of the speeds of A and B is  $a : b$ , then the ratio of the times taken by them to cover the same distance is  $\frac{1}{a} : \frac{1}{b}$  or  $b : a$ .

5. Suppose a man covers a certain distance at  $x$  km/hr and an equal distance at  $y$  km/hr. Then, the average speed during the whole journey is  $\left( \frac{2xy}{x+y} \right)$  km/hr.

$$x \text{ km/hr} = [x * 5/18] \text{ m/sec.}$$

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

$$x \text{ m/sec} = [x * 18/5] \text{ km/hr.}$$

Suppose a man covers a certain distance at  $x$  km/hr and an equal distance at  $y$  km/hr. then, the average speed during the whole journey is  $[2xy/x+y] \text{ km/hr.}$

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### EXERCISE

1. A scootrist is going with the speed of 45 km/hour. How many meter distance will be covered in 4 minutes-  
(a) 200 meter (b) 3000 meter (c) 4 meter (d) None
2. A cyclist is going with the speed of 4 meter/sec. What distance it will cover in 3 hours 20 minutes-  
(a) 20 km (b) 30 km (c) 48 km (d) none
3. A car is running from P to Q with the speed of 72 km/h. and coming back by 48 km/h. The average speed will be-  
(a) 57.6 km/h (b) 45.6 km/h (c) 37.6 km/h (d) None
4. I walk from my house at 5 km/h and reach my school 7 minutes late. If I walk at 6 km/h I reach 5 minute early. The distance of my school from my house is –  
(a) 5 km (b) 6 km (c) 5.6 km - (d) None
5. A goods train starts from a station with certain speed and time. 6 hours later a passenger train goes in Same Direction with the speed of 90 km/h. and together that goods train in 4 hours later. Speed of goods train is-  
(a) 54 km/h (b) 35 km/h (c) 36 km/h (d) None
6. A car cover 840 km. with a certain speed. If the speed of car is 10 km/h more , then it takes 2 hours less to cover same distance . The original speed of the car (km/h) was –  
(a) 60 km/h (b) 66 km/h (c) 70 km/h (d) None
7. A man has to cover 40 km. He covers 16 km with the speed of 4 km/h on foot and remaining distance Cover by Tonga. If he covers 16 km by Tonga and rest part cover on foot with the speed of 4 km/h then he takes one hour more .Speed of Tonga is –  
(a) 9 km/h (b) 8 km/h (c) 6 km/h (d) None
8. Man goes from A to B town by 55 km/h and come back 45 km/h speed . Average speed in full journey is  
(a) 49.5 km/h (b) 60.5 km/h (c) 52.8 km/h (d) None
9. A cyclist covers a certain distance in 4 hours 36 minutes at a speed of 14.4 km/h .What time will be taken If same distance cover at a speed of 5.5 km/h on foot –  
(a) 13 hours (b) 5 hours (c) 12 hours (d) None
10. What distance will be cover by a car at a speed of 92.4 km/h in 20 minutes -  
(a) 18480 meter (b) 30800 meter (c) 15400 meter (d) None
11. Man covers a certain distance at a speed of 8 km/h and return by 6 km/h speed .In whole journey he takes 3hours 30 minutes .The distance is –  
(a) 28 km (b) 24 km (c) 12 km - (d) None
12. Man goes to his office at a speed of 4 km/h and come back by 16 km/h.. Find his average speed in Whole journey  
(a) 10 km/h (b) 6 km/h (c) 6.4 km/h (d) None

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## **ANSWER SHEET**

### **TIME & DISTENCE EXERCISE**

<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>	<b>11</b>	<b>12</b>
B	C	A	B	C	A	B	A	D	B	C	C