

1- Two trains are moving in opposite directions at 60 km/hr and 90 km/hr. Their lengths are 1.10 km and 0.9 km respectively. The time taken by the slower train to cross the faster train in seconds is:

- **A.**48 sec
- **B.**52 sec
- **C.**58 sec
- **D.**66 sec
- **E.**None of these

Answer & Explanation

Answer - **A** (48 sec)

Explanation - Relative speed = $(60 + 90)$ km/hr

$$= [150 \times 5/18] \text{ m/sec} = [125 / 3] \text{ m/sec.}$$

$$\text{Distance covered} = (1.10 + 0.9) \text{ km} = 2 \text{ km} = 2000 \text{ m.}$$

$$\text{Required time} = [2000 \times 3/125] \text{ sec} = 48 \text{ sec.}$$

2- Two trains 140 m and 160 m long run at the speed of 60 km/hr and 40 km/hr respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is:

- **A.**7 sec
- **B.**8.6 sec
- **C.**10.8 sec
- **D.**11 sec
- **E.**None of these

Answer & Explanation

Answer - **C** (10.8)

Explanation - Relative speed = $(60 + 40)$ km/hr = $[100 \times 5/18] \text{ m/sec}$

$$= [250/9] \text{ m/sec.}$$

$$\text{Distance covered in crossing each other} = (140 + 160) \text{ m} = 300 \text{ m.}$$

$$\text{Required time} = [300 \times 9/250] \text{ sec} = 54/5 \text{ sec}$$

$$= 10.8 \text{ sec.}$$

3- A 270 metres long train running at the speed of 120 kmph crosses another train running in opposite direction at the speed of 80 kmph in 9 seconds. What is the length of the other train?

- A.190
- B.200
- C.225
- D.230
- E.None of these

Answer & Explanation

Answer - D (230)

Explanation - Relative speed = $(120 + 80)$ km/hr

$$[200 \times 5/18] \text{ m/sec} = [500/9] \text{ m/sec.}$$

Let the length of the other train be x metres.

$$\text{Then, } x + 270 / 9 = 500/9$$

$$\Leftrightarrow x + 270 = 500$$

$$\Leftrightarrow x = 230.$$

4- Two trains of equal length are running on parallel lines in the same direction at 46 km/hr and 36 km/hr. The faster train passes the slower train in 36 seconds. The length of each train is:

- A.45
- B.50
- C.60
- D.80
- E.None of these

Answer & Explanation

Answer - B (50)

Explanation - Let the length of each train be x metres.

Then, distance covered = $2x$ metres.

Relative speed = $(46 - 36)$ km/hr = $[10 \times 5/18]$ m/sec = $[25/9]$ m/sec.

$$\therefore 2x/36 = 25/9$$

$$\Leftrightarrow 2x = 100$$

$$\Leftrightarrow x = 50.$$

5- A train 125 m long passes a man, running at 5 kmph in the same direction in which the train is going, in 10 seconds. The speed of the train is:

- A.38 km/hr
- B.40 km/hr
- C.44 km/hr
- D.50 km/hr
- E.None of these

Answer & Explanation

Answer - D (50 km/hr)

Explanation - Speed of the train relative to man = $[125/10]$ m/sec = $[25/2]$ m/sec.

$$= [25/2 \times 18/5] \text{ km/hr} = 45 \text{ km/hr.}$$

Let the speed of the train be x kmph.

Then, relative speed = $(x - 5)$ kmph.

$$\therefore x - 5 = 45 \text{ or } x = 50 \text{ kmph.}$$

6- A jogger running at 9 kmph alongside a railway track in 240 metres ahead of the engine of a 120 metres long train running at 45 kmph in the same direction. In how much time will the train pass the jogger?

- **A.3.6 sec**
- **B.18 sec**
- **C.36 sec**
- **D.72 sec**
- **E.None of these**

Answer & Explanation

Answer - C (36 sec)

Explanation - Speed of train relative to jogger = $(45 - 9) \text{ km/hr} = 36 \text{ km/hr}$

$$= 36 \times \frac{5}{18} \text{ m/sec}$$

$$= 10 \text{ m/sec.}$$

$$\text{Distance to be covered} = (240 + 120) \text{ m} = 360 \text{ m}$$

$$\text{Time taken} = \frac{360}{10} \text{ sec} = 36 \text{ sec.}$$

7- 270 metres long train running at the speed of 120 kmph crosses another train running in opposite direction at the speed of 80 kmph in 9 seconds. What is the length of the other train?

- A.230 m
- B.240 m
- C.260 m
- D.320 m
- E.None of these

Answer & Explanation

Answer - A (230 m)

Explanation - Relative speed = $(120 + 80)$ km/hr

$$= 200 \times \frac{5}{18} \text{ m/sec}$$

$$= \frac{500}{9} \text{ m/sec.}$$

Let the length of the other train be x metres.

$$\text{Then, } \frac{x + 270}{9} = \frac{500}{9}$$

$$x + 270 = 500$$

$$x = 230.$$

8- A goods train runs at the speed of 72 kmph and crosses a 250 m long platform in 26 seconds. What is the length of the goods train?

- A.230 m
- B.240 m
- C.260 m
- D.270 m
- E.None of these

Answer & Explanation

Answer - D (270 m)

Explanation -

$$\text{Speed} = 72 \times \frac{5}{18} \text{ m/sec} = 20 \text{ m/sec.}$$

Time = 26 sec.

Let the length of the train be x metres.

$$\text{Then, } \frac{x + 250}{26} = 20$$

$$x + 250 = 520$$

$$x = 270.$$

9- Two trains, each 100 m long, moving in opposite directions, cross each other in 8 seconds. If one is moving twice as fast the other, then the speed of the faster train is:

- A.30 km/hr
- B.45 km/hr
- C.60 km/hr
- D.75 km/hr
- E.None of these

Answer & Explanation

Answer - C (60 km/hr)

Explanation - Let the speed of the slower train be x m/sec.

Then, speed of the faster train = $2x$ m/sec.

Relative speed = $(x + 2x)$ m/sec = $3x$ m/sec.

$$\frac{(100 + 100)}{8} = 3x$$

$$24x = 200$$

$$x = \frac{25}{3}$$

$$\text{So, speed of the faster train} = \frac{50}{3} \text{ m/sec}$$

$$= \frac{50}{3} \times \frac{18}{5} \text{ km/hr}$$

$$= 60 \text{ km/hr.}$$

10- Two trains 140 m and 160 m long run at the speed of 60 km/hr and 40 km/hr respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is:

- A.9
- B.9.6

- C.10
- D.10.8
- E.None of these

Answer & Explanation

Answer - D (10.8)

Explanation -

$$\text{Relative speed} = (60 + 40) \text{ km/hr} = 100 \times \frac{5}{18} \text{ m/sec} = \frac{250}{9} \text{ m/sec.}$$

$$\text{Distance covered in crossing each other} = (140 + 160) \text{ m} = 300 \text{ m.}$$

$$\text{Required time} = 300 \times \frac{9}{250} \text{ sec} = \frac{54}{5} \text{ sec} = 10.8 \text{ sec.}$$