

## Problems on Trains

1. Train P overtakes train Q double its length and traveling at half of speed of train P in 36 seconds. Train P crosses train R going in the opposite direction at double its speed in 8 seconds. If the speed of train P is 72 km/ph then the length of train R is?

- A. 330 m
- B. 360 m
- C. 390 m
- D. 420 m

### Answer & Explanation

Answer :

360 m

Explanation :

For Train P length = L, Speed = 72 kmph For train Q length = 2L, Speed = 36 kmph  $(L + 2L)/(72 - 36) \times 5/18$  L = 120 meter For train R Speed = 2 X 72 = 144 kmph & length = x meter  $(120 + x) / (144 + 72) \times 5/18 = 8$  x = 360 meter

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2. A 300 m long train crosses a platform in 39 seconds while it crosses a signal pole in 18 seconds. What is the length of the platform?

- A. 320 ,m
- B. 350 m
- C. 600 m
- D. 650 m

### Answer & Explanation

Answer :

350 m

Explanation :

Speed =  $(300/18)$  m/sec =  $50/3$  m/sec Let the length of the platform be X meters. then  $X + 300/39 = 50/3 = 3(X + 300) = 1950 = X = 350$ m

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3. A jogger running at 9kmph alongside a railway track is 240 meters ahead of the engine of a 120 meter long train running at 45 km/hr 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

Answer & Explanation

Answer :

36 sec

Explanation :

Speed of the train relative to jogger =  $(45-9)$  km/hr = 36 km/hr =  $(36*5/18)$  m/sec = 10 m/sec  
Distance to be covered =  $(240+120)$ m = 360 m  
Time taken =  $(360/10)$  sec = 36 sec

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4. A speed of 14 meters per second is the same as?

- A. 28 km/hr
- B. 46.6 km/hr
- C. 50.4 km/hr
- D. 70 km/hr

Answer & Explanation

Answer :

50.4 km/hr

Explanation :

14 m/sec =  $(14*18/5)$  km/hr = 50.4 km/hr

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5. How many seconds will a 500 m long train take to cross a man walking with a speed of 3 km/hr in the direction of the moving train if the speed of the train is 63 km/hr?

- A. 25
- B. 30
- C. 40
- D. 45

Answer & Explanation

Answer :

30

Explanation :

Speed of the train relative to man =  $(63-3)$ km/hr = 60 km/hr =  $(60*5/18)$ m/sec = 50/3 m/sec  
Time taken to pass the man =  $(500*3/50)$  sec = 30 seconds

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6. The length of the bridge, which a train 130 meters long and traveling at 45 km/hr can

cross in 30 seconds, is?

- A. 245 m
- B. 200 m
- C. 225 m
- D. 250 m

**Answer & Explanation**

**Answer :**

245 m

**Explanation :**

Speed =  $(45 \times 5/18)$  m/sec =  $(25/2)$  m/sec; time = 30 sec. Let the length of bridge be x meters. Then,  $130 + x/30 = 25/2 \Leftrightarrow 2(130 + x) = 750 \Leftrightarrow x = 245$  m.

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7. A good train runs at the speed of 72 km/hr and crosses a 250 m long platform in 26 seconds. What is the length of the good train?

- A. 230 m
- B. 240 m
- C. 260 m
- D. 270 m

**Answer & Explanation**

**Answer :**

270 m

**Explanation :**

Speed =  $(72 \times 5/18)$  m/sec = 20 m/sec; time = 26 sec. Let the length of the train be x meters. Then,  $x + 250/26 = 20 \Leftrightarrow x + 250 = 520 \Leftrightarrow x = 270$  m.

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8. A 270 meters long train running at the speed of 120 km/ph crosses other train running in opposite direction at the speed of 80 km/ph in 9 seconds. What is the length of the other train?

- A. 230 m
- B. 240 m
- C. 260 m
- D. 320 m

**Answer & Explanation**

**Answer :**

230 m

**Explanation :**

Relative speed =  $(120 + 80)$  km/hr =  $(200 \times 5/18)$  m/sec =  $(500/9)$  m/sec Let the length of

the other train be  $x$  meters Then  $x + 270/9 = 500/9 = x + 270 = 500 = x = 230$  m

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9. Two trains are running at 40 km/hr and 20 km/hr respectively in the same direction. Fast train completely passes a man sitting in the slower train in 5 seconds. What is the length of the fast train?

- A. 23 m
- B.  $23 \frac{2}{9}$  m
- C. 27 m
- D.  $27 \frac{7}{9}$  m

[Answer & Explanation](#)

**Answer :**

$27 \frac{7}{9}$  m

**Explanation :**

Relative speed =  $(40 - 20)$  km/hr =  $(20 \times 5/18)$  m/sec =  $(50/9)$  m/sec Length of faster train =  $(50/9 \times 5)$  m =  $250/9$  m =  $27 \frac{7}{9}$  m

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10. In what time will a train 100 meters long cross an electric pole if its speed be 144 km/hr?

- A. 2.5 sec
- B. 4.25 sec
- C. 5 sec
- D. 12.5 sec

[Answer & Explanation](#)

**Answer :**

2.5 sec

**Explanation :**

Speed =  $(144 \times 5/18)$  m/sec = 40 m/sec Time taken =  $(100/40) = 2.5$  sec

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11. A train traveling at a speed of 75 km/hr enters a tunnel  $3 \frac{1}{2}$  miles long. the train is  $\frac{1}{4}$  mile long. How long does it take for the train to pass through the tunnel from the moment the front enters to the moment the rear emerges?

- A. 2.5 min
- B. 3 min
- C. 3.2 min
- D. 3.5 min

[Answer & Explanation](#)

Answer :

3 min

Explanation :

Total distance covered =  $(\frac{7}{2} + \frac{1}{4})$  miles =  $\frac{15}{4}$  miles. Therefore time taken =  $(\frac{15}{4} \times \frac{1}{75})$  hrs =  $\frac{1}{20}$  hrs =  $(\frac{1}{20} \times 60)$  min. = 3 min.

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12. A train 220 m long is running with a speed of 59 kmph. In what time will it pass a man who is running at 7 km/ph in the direction opposite to that in which the train is going?

- A. 16 sec
- B. 14 sec
- C. 12 sec
- D. 15 sec

Answer & Explanation

Answer :

12 sec

Explanation :

Speed of the train relative to man =  $(59+7)$  km/ph =  $(\frac{66 \times 5}{18})$  m/sec =  $(\frac{55}{3})$  m/sec  
Time taken by the train to cross the man Time taken by it to cover 220 m at  $(\frac{55}{3})$  m/sec  
=  $(\frac{220 \times 3}{55})$  sec = 12 sec.

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13. A train 280 m long running speed of 63 km/hr will pass a tree in?

- A. 15 sec
- B. 16 sec
- C. 18 sec
- D. 20 sec

Answer & Explanation

Answer :

16 sec

Explanation :

Speed =  $(\frac{63 \times 5}{18})$  m/sec =  $\frac{35}{2}$  m/sec Time taken =  $(\frac{280 \times 2}{35})$  m/sec = 16 sec

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14. A train running at 54 km/ph takes 20 seconds to pass a platform. Next it takes 12 seconds to pass a man walking at 6 km/ph in the same direction in which the train is going. Find the length of the train and the length of the platform?

- A. 135 m
- B. 142 m

- C. 140 m
- D. 138 m

Answer & Explanation

Answer :

140 m

Explanation :

Let the length of the train be X meters and length of platform be Y meters. Speed of the train relative to man =  $(54-6)$  km/ph =  $48$  km/ph =  $(48*5/18)$ m/sec =  $40/3$  m/sec In passing a man the train covers its own length with relative speed. Length of train = (relative speed \* time) =  $(40/3*12)$ m =  $160$ m Also speed of the train =  $(54*5/18)$ m/sec =  $15$  m/sec Hence  $x+y/15 = 20$   $x+y = 300$   $y = (300 -160)$  m =  $140$  m

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15. A train 800 meters long is running at a speed of 78 km/hr. If it crosses a tunnel in 1 minute, then the length of the tunnel (in meters) is?

- A. 130
- B. 360
- C. 500
- D. 540

Answer & Explanation

Answer :

500

Explanation :

Speed =  $(78*5/18)$  m/sec =  $(65/3)$  m/sec. time = 1minute = 60 sec. Let the length of the tunnel be x meters. then,  $800+x/60=65/3$   $\Leftrightarrow 3(800+x) = 3900$   $\Leftrightarrow x = 500$ .

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16. A train of length 150 m takes 40.5 sec to cross a tunnel of length 300 m. What is the speed of the train in km/hr?

- A. 13.33
- B. 26.67
- C. 40
- D. 66.67

Answer & Explanation

Answer :

40

Explanation :

Speed =  $(150+300/40.5)$  A meter per second =  $(450/40.5*18/5)$  km/hr =  $40$  km/hr

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17. A train running at the speed of 60 km/hr crosses a pole in 9 seconds. What is the length of the train?

- A. 120 meters
- B. 180 meters
- C. 150 meters
- D. None of these

Answer & Explanation

Answer :

150 meters

Explanation :

Speed =  $(60 \times 5/18)$  m/sec =  $(50/3)$  m/sec. Length of the train = (speed \* time) =  $(50/3 \times 9)$  m = 150 m.

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18. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, what is the length of the platform?

- A. 120 m
- B. 240 m
- C. 300 m
- D. None of these

Answer & Explanation

Answer :

240 m

Explanation :

Speed =  $(54 \times 5/18)$  m/sec = 15 m/sec. Length of the train =  $(15 \times 20)$  m = 300m Let the length of the platform be X meters Then  $X + 300/36 = 15 \Leftrightarrow X + 300 = 540 \Leftrightarrow X = 240$ m

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19. A train 100 m long is running at the speed of 30 km/hr. Find the time taken by it to pass a man standing near the railway line?

- A. 12 sec
- B. 14 sec
- C. 13 sec
- D. 10 sec

Answer & Explanation

Answer :

12 sec

**Explanation :**

Speed of the train =  $(30 \times 5/18)$  m/sec =  $(25/3)$  m/sec Distance moved in passing standing man = 100m Required time taken =  $100 / (25/3) = (100 \times 3/25)$  sec = 12 seconds

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20. Two goods train each 500 m long are running in opposite directions on parallel tracks. Their speeds are 45 km/hr and 30 km/hr respectively. Find the time taken by the slower train to pass the driver of the faster one.

- A. 12 sec
- B. 24 sec
- C. 48 sec
- D. 60 sec

**Answer & Explanation**

**Answer :**

48 sec

**Explanation :**

Relative speed =  $(45+30)$  km /hr =  $(75 \times 5/18)$  m/sec =  $(125/6)$  m/sec Distance covered =  $(500+500)$  m = 1000m Required time =  $(1000 \times 6/125)$  sec = 48 sec

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21. A train X speeding with 120 km/ph crosses another train Y running in the same direction, in 2 minutes. If the lengths of the trains X and Y be 100 m and 200 m respectively what is the speed of the train Y?

- A. 111 km/hr
- B. 123 km/hr
- C. 127 km/hr
- D. 129 km/hr

**Answer & Explanation**

**Answer :**

111 km/hr

**Explanation :**

Let the speed of train Y be X km /hr Speed of X relative to Y =  $(120-x)$  km/hr =  $[(120-x) \times 5/18]$  m/sec =  $(600-5x/18)$  m/sec =  $300 / (600-5x/18) = 120 \Leftrightarrow 5400 = 120(600-5x) \Leftrightarrow x = 111$

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22. A train moves with a speed of 108 km/hr. Its speed in meters per second is?

- A. 10.8m/sec
- B. 18 m/sec
- C. 30 m/sec



D. 38.8 m/sec

Answer & Explanation

Answer :

30 m/sec

Explanation :

$108 \text{ km/hr} = (108 \times 5/18) = 30 \text{ m/sec}$

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23. Two trains 137 meters and 163 meters in length are running towards each other on parallel lines, one at the rate of 42 km/hr and another at 48 km/hr. In what time will they be clear of each other from the moment they meet?

- A. 10 seconds
- B. 12 seconds
- C. 15 seconds
- D. 20 seconds

Answer & Explanation

Answer :

12 seconds

Explanation :

Relative speed of the trains =  $(42+48) \text{ km/hr} = 90 \text{ km/hr} = (90 \times 5/18) \text{ m/sec} = 25 \text{ m/sec}$   
time taken by the trains to pass each other = Time taken to cover  $(137+163) \text{ m}$  at  $25 \text{ m/sec} = (300/25) \text{ sec} = 12 \text{ seconds}$ .

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24. Two trains are running in opposite directions with the same speed. If the length of each train is 120 meters and they cross each other in 12 seconds then the speed of each train (in km/hr) is?

- A. 10
- B. 18
- C. 36
- D. 72

Answer & Explanation

Answer :

36

Explanation :

Let the speed of each train be  $X \text{ m/sec}$  Relative speed of the two trains =  $2 \times X \text{ m/sec}$  So  $2X = (120+120)/12 = 2X = 20$   $X = 10$  Speed of each train =  $10 \text{ m/sec} = (10 \times 18/5) \text{ km/hr} = 36 \text{ km/hr}$

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25. Two trains of equal lengths take 10 seconds and 15 seconds respectively to cross a telegraph post. If the length of each train be 120 meters in what time (in seconds) will they cross each other traveling in opposite direction?

- A. 10
- B. 12
- C. 15
- D. 20

**Answer & Explanation**

**Answer :**

12

**Explanation :**

Speed of first train =  $(120/10)$  m/sec = 12 m/sec  
Speed of the 2<sup>nd</sup> train =  $(120/15)$  m/sec = 8 m/sec  
Relative speed =  $(12+8) = 20$  m/sec  
Required time =  $(120+120)/20$  sec = 12 seconds.

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