

Time and Distance

1. Anna left for city A from city B at 5.20 a.m. she traveled at the speed of 80 km/hr for 2 hours 15 minutes. After that speed was reduced to 60 km/hr. If the distance between two cities is 350 kms, at what time did Anna reach city A?

- A. 9.20.a.m
- B. 9.25 a.m
- C. 9.35 a.m
- D. 10.25 a.m

Answer & Explanation

Answer :

10.25 a.m

Explanation :

Distance covered in 2 hours 15 minutes i.e. $2\frac{1}{4}$ hrs = $(80 \times \frac{9}{4})$ hrs = 180 hrs
Time taken to cover remaining distance = $(350-180/60)$ hrs = $17/6$ hrs = $2\frac{5}{6}$ hrs = 2hrs 50 minutes
Total time taken = 2 hrs 15 minutes + 2 hrs 50 minutes = 5hrs 5 minutes
So Anna reached city A at 10.25 a.m

2. Mary jogs 9 km at a speed of 6 km/hr. At what speed would she need to jog during the next 1.5 hrs to have an average of 9 km/hr for the entire jogging session?

- A. 9 km/hr
- B. 10 km/hr
- C. 12 km/hr
- D. 14 km/hr

Answer & Explanation

Answer :

12 km/hr

Explanation :

Let speed of jogging be X km/hr
Total time taken = $(\frac{9}{6}$ hrs + 1.5 hrs) = 3 hrs
Total distance covered = $(9 + 1.5x)$ km
Hence $\frac{9 + 1.5x}{3} = 9$
 $9 + 1.5x = 27$
 $1.5x = 18$
 $x = \frac{18 \times 2}{3} = 12$ km/hr.

3. A car moves at the speed of 80 km/hr. What is the speed of the car in metres per second?

- A. 8 m/sec
- B. $20 \frac{1}{9}$ m/sec
- C. $22 \frac{2}{9}$ m/sec
- D. none of these

Answer & Explanation

Answer :

$22 \frac{2}{9}$ m/sec

Explanation :

Speed = $(80 * \frac{5}{18})$ m/sec = $\frac{200}{9}$ m/sec = $22 \frac{2}{9}$ m/sec.

4. The ratio between the speeds of two trains is 7:8. If the second train runs 400 kilometers in 4 hours, then the speed of the first train is?

- A. 70 km/hr
- B. 75 km/hr
- C. 84 km/hr
- D. 87.5 km/hr

Answer & Explanation

Answer :

87.5 km/hr

Explanation :

Let the speeds of two trains be $7x$ and $8x$ km/hr. then $8x = \frac{400}{4} = x = \frac{100}{8} = 12.5$
speed of first train = $(7 * 12.5) = 87.5$ km/hr

5. A train running at $\frac{7}{11}$ of its own speed reached a place in 22 hrs. How much time could be saved if the train would have run at its own speed?

- A. 7 hrs
- B. 8 hrs
- C. 14 hrs
- D. 16 hrs

Answer & Explanation

Answer :

8 hrs

Explanation :

New speed $\frac{7}{11}$ of usual speed New time = $\frac{11}{7}$ of usual time So $\frac{11}{7}$ of usual time = 22 hrs = usual time = $(22 * \frac{7}{11}) = 14$ hrs Hence time saved = $(22 - 14) = 8$ hrs

6. A man performs $\frac{3}{5}$ of the total journey by rail $\frac{17}{20}$ by bus and the remaining 6.5 km on foot. His total journey is?

- A. 65 km
- B. 100 km
- C. 120 km
- D. 130 km

Answer & Explanation

Answer :

130 km

Explanation :

Let the total journey be x km. Then $\frac{3x}{5} + \frac{7x}{20} + 6.5 = x$
 $\frac{12x+7x+20x*6.5}{20} = 20x = x = 130\text{km}$

7. A man walking at the rate of 5 km/hr crosses a bridge in 15 minutes. the length of the bridge (in meters) is?

- A. 600
- B. 750
- C. 1000
- D. 1250

Answer & Explanation

Answer :

1250

Explanation :

Speed = $(\frac{5*5}{18})$ m/sec = $\frac{25}{18}$ m/sec. Distance covered in 15 minutes = $(\frac{25}{18}*15*60)$
 $m = 1250$ m.

8. A man travels 600 km by train at 80 km per hour 800 km by ship at 40 km per hour, 500 km by aeroplane at 400 km/hr and 100 km by car at 50 km per hour. What is the average speed for the entire distance?

- A. 60 km/hr
- B. $60\frac{5}{123}$ km/hr
- C. 62 km/hr
- D. $65\frac{5}{123}$ km/hr

Answer & Explanation

Answer :

$65\frac{5}{123}$ km/hr

Explanation :

Total distance traveled = $(600+800+500+500+100)$ km = 2000 km
Total time taken = $(600/80 + 800/40 + 500/400 + 100/50)$ hrs = $123/4$ hrs
Average speed = $(2000 \times 4/123)$ km/hrs = $(8000/123)$ km/hr = $65 \frac{5}{123}$ km/hr

9. 2 men start together to walk to a certain destination, one at 3 km/hr and another at 3.75 km/hr. The later arrives half an hour before the former. The distance is?

- A. 6 km
- B. 7.5 km
- C. 8 km
- D. 9.5 km

Answer & Explanation

Answer :

7.5 km

Explanation :

Let the distance be x km then $x/3 - x/3.75 = 1/2 = 2.5x - 2x = 3.75x = 3.75/0.50 = 15/2 = 7.5$ km

10. An express train traveled at an average speed of 100 km/hr, stopping for 3 minutes after every 75 km. How long did it take to reach its destination 600 km from the starting point?

- A. 6 hrs 21min
- B. 6 hrs 24 min
- C. 6 hrs 27 min
- D. 6 hrs 30 min

Answer & Explanation

Answer :

6 hrs 21min

Explanation :

Time taken to cover 600 km = $(600/100)$ hrs = 6 hrs. Number of stop pages = $600/75 - 1 = 7$. Total time of stoppage = (3×7) min = 21 min. Hence, total time taken = 6 hrs 21 min.

11. A person has to cover a distance of 6 km in 45 minutes. If he covers one-half of the distance in two-thirds of the total time to cover the remaining distance in the remaining time his speed (in km/hr) must be:

- A. 6

- B. 8
- C. 12
- D. 15

Answer & Explanation

Answer :

12

Explanation :

Remaining distance = 3km and remaining time = $(1/3 \times 45)$ min = 15 min = $1/4$ hour

Required speed = (3×4) km/hr = 12 km/hr

12. A man in a train notices that he can count 21 telephone posts in one minute. If they are known to be 50 meters apart, then at what speed is the train traveling?

- A. 55 km/hr
- B. 57 km/hr
- C. 60 km/hr
- D. 63 km/hr

Answer & Explanation

Answer :

60 km/hr

Explanation :

Number of gaps between 21 telephone posts = 20. Distance traveled in 1 minute = (50×20) m = 1000 m = 1 km. Therefore speed = 60 km/hr.

13. How long will a boy take to run round a square field of side 35 meters, if he runs at the rate of 9 km/hr?

- A. 50 sec
- B. 52 sec
- C. 54 sec
- D. 56 sec

Answer & Explanation

Answer :

56 sec

Explanation :

Speed = 9 km/hr = $(9 \times 5/18)$ m/sec = $5/2$ m/sec. distance = (35×4) m = 140m. therefore time taken = $(140 \times 2/5)$ sec = 56 sec.

14. If a person walks at 14 km/hr instead of 10km/hr, he would have walked 20km more. the actual distance traveled by him is?

- A. 50 km
- B. 56 km
- C. 70 km
- D. 80 km

Answer & Explanation

Answer :

50 km

Explanation :

Let the actual distance traveled be x km then $x/10 = x+20/14$ $14x = 10x+200$ $4x = 200$
 $x = 50$ km

15. in covering a distance of 30 km Abhay takes 2 hours more than sameer. If Abhay doubles his speed then he would take 1 hr less than sameer. Abhay speed is?

- A. 5 km/hr
- B. 6 km/hr
- C. 6.25 km/hr
- D. 7.5 km/hr

Answer & Explanation

Answer :

5 km/hr

Explanation :

Let Abhay speed be x km/hr then $30/x - 30/2x = 2$ $30 = 6x = 30 = x = 5$ km/hr

16. A boy goes to his school from his house at a speed of 3 km/hr and returns at a speed of 2 km/hr.If he takes 5 hours in going and coming,the distance between his house and school is?

- A. 5 km
- B. 5.5 km
- C. 6 km
- D. 6.5 km

Answer & Explanation

Answer :

6 km

Explanation :

Average speed = $(2 \cdot 3 \cdot 2/3 + 2)$ km/hr = $12/5$ km/hr Distance traveled = $(12/5 * 5)$ km = 12 km
Distance between house and school = $12/2 = 6$

17. A person travels equal distances with speeds of 3km/hr 4km/hr and 5km/hr and takes a total time of 47 minutes.The total distance (in km) is:

- A. 5
- B. 4
- C. 3
- D. 2

Answer & Explanation

Answer :

3

Explanation :

Let the total distance be $3x$ km.Then, $x/3+x/4+x/5= 47/60$ $47x/60=47/60 = x=1$ Total distance = $(3*1)$ km = 3km

18. 3 persons are walking from a place A to another place B.Their speeds are in the ratio of 4:3:5.The time ratio to reach B by these persons will be

- A. 4:3:5
- B. 5:3:4
- C. 15:9:20
- D. 15:20:12

Answer & Explanation

Answer :

15:20:12

Explanation :

Ratio of speeds = 4:3:5 Ratio of times taken = $1/4 : 1/3 : 1/5 = 15 : 20 : 12$

19. The speed of a car increases by 2 km after everyone hour. If the distance traveled in the first one hour was 35 km, what was the total distance traveled in the first one hour was 35 km, what was the total distance traveled in 12 hours?

- A. 456 km
- B. 482 km
- C. 552 km
- D. None of these

Answer & Explanation

Answer :

552 km

Explanation :

Total distance traveled in 12 hours = $(35+37+39+\dots$ up to 12 terms). This is an A.P. with first term, $a = 35$, number of terms, $n=12$, common difference, $d=2$. Therefore required distance = $12/2 (2*35+(12-1)*2) = 6(70+22) = 552$ km.

20. A car is running at a speed of 108 km. What distance will it cover in 15 seconds?

- A. 45 meters
- B. 55 meters
- C. 450 meters
- D. none of these

Answer & Explanation

Answer :

450 meters

Explanation :

Speed = 108 km = $(108*5/18)$ m/sec = 30 m/sec. therefore distance covered in 15 sec. = $(30*15)$ m = 450 m.

21. The average speed of a train in the onward journey is 25% more than that in the return journey. The train halts for 1 hour on reaching the destination. The total time taken for the complete to and from journey is 17 hours, covering a distance of 800 km. The speed of the train in onward journey is:

- A. 45 km/hr
- B. 47.5 km/hr
- C. 52 km/hr
- D. 56.25 km/hr

Answer & Explanation

Answer :

56.25 km/hr

Explanation :

Let the speed in return journey be x km/hr Then speed in onward journey = $125/100 x = (5/4 x)$ km/hr Average speed = $(2*5/4 x * x / 5/4 x + x)$ km/hr = $10x/9$ km/hr $(800 * 9/10x) = 16 = x = (800*9/16*10) = 45$ So speed in onward journey = $(5/4 * 45)$ km/hr = 56.25 km/hr

22. Mac travels from A to B a distance of 250 miles in $5\frac{1}{2}$ hours. He returns to A in 4 hours 30 minutes. his average speed is?

- A. 44 mph
- B. 46 mph
- C. 48 mph
- D. 50 mph

Answer & Explanation

Answer :

50 mph

Explanation :

Speed from A to B $= (250 \times 2 / 11)$ mph $= (500 / 11)$ mph. Speed from B to A $= (250 \times 2 / 9)$ mph $= (500 / 9)$ mph. Therefore average speed $= (2 \times 500 / 11 \times 500 / 9 / (500 / 11 + 500 / 9))$ mph $= (500000 / (4500 + 5500))$ mph $= 50$ mph

23. With a uniform speed a car covers the distance in 8 hours. Had the speed been increased by 4 km/hr, The same distance could have been covered in $7\frac{1}{2}$ hrs. What is the distance covered?

- A. 420 km
- B. 480 km
- C. 640 km
- D. None of these

Answer & Explanation

Answer :

480 km

Explanation :

Let the distance be x km then $x / 7\frac{1}{2} - x / 8 = 4 = 2x / 15 - x / 8 = 4 = x = 480$ km

24. A man can reach certain place in 30 hrs. If he reduce his speed by $\frac{1}{15}$ th he goes 10 km less in the time. Find his speed?

- A. 4 km/hr
- B. 5 km/hr
- C. $5\frac{1}{2}$ km/hr
- D. 6 km/hr

Answer & Explanation

Answer :

5 km/hr

Explanation :

Let the speed be x km/hr then $30x - 30 \cdot 14/15 x = 10 = 2x = 10 = x = 5$ km/hr

25. Two men starting from the same place walk at the rate of 5 km/hr and 5.5 km/hr respectively. What time will they take to be 8.5 km apart, if they walk in the same direction?

- A. 4 hrs 15 min
- B. 8 hrs 30 min
- C. 16 hrs
- D. 17 hrs

Answer & Explanation

Answer :

17 hrs

Explanation :

To be 0.5 km apart, they take 1 hour. To be 8.5 km apart, they take $(1/0.5 \cdot 8.5)$ hrs = 17 hrs.
