Problems on trains

Formulas for finding Speed, Time and Distance

1. Time taken by a train of length *l* metres to pass a pole or standing man or a signal post is equal to the time taken by the train to cover *l* metres.
2. Time taken by a train of length *l* metres to pass a stationery object of length *b* metres is the time taken by the train to cover (*l* + *b*) metres.
3. Suppose two trains or two objects bodies are moving in the same direction at *u* m/s and *v* m/s, where *u* > *v*, then their relative speed is = (*u* - *v*) m/s.
4. Suppose two trains or two objects bodies are moving in opposite directions at *u* m/s and *v* m/s, then their relative speed is = (*u* + *v*) m/s.
5. If two trains of length *a* metres and *b* metres are moving in opposite directions at *u* m/s and *v* m/s, then:

   The time taken by the trains to cross each other = $\frac{(a + b)}{(u + v)}$ sec.

6. If two trains of length *a* metres and *b* metres are moving in the same direction at *u* m/s and *v* m/s, then:

   The time taken by the faster train to cross the slower train = $\frac{(a + b)}{(u - v)}$ sec.

7. If two trains (or bodies) start at the same time from points A and B towards each other and after crossing they take *a* and *b* sec in reaching B and A respectively, then:

   (A's speed) : (B's speed) = (b : a)

1. A train is running at a speed of 40 km/hr and it crosses a post in 18 seconds. What is the length of the train?
A. 190 metres B. 160 metres C. 200 metres D. 120 metres

2. A train ,130 meters long travels at a speed of 45 km/hr crosses a bridge in 30 seconds. The length of the bridge is
A. 270 m B. 245 m C. 235 m D. 220 m

3. A train has a length of 150 meters. it is passing a man who is moving at 2 km/hr in the same direction of the train, in 3 seconds. Find out the speed of the train.
A. 182 km/hr B. 180 km/hr C. 152 km/hr D. 169 km/hr

4. A train having a length of 240 m passes a post in 24 seconds. How long will it take to pass a platform having a length of 650 m?
A. 120 sec B. 99 s C. 89 s D. 80 s

5. A train 360 m long runs with a speed of 45 km/hr. What time will it take to pass a platform of 140 m long?

A. 38 sec B. 35 s C. 44 sec D. 40 s

6. Two trains are moving in opposite directions with speed of 60 km/hr and 90 km/hr respectively. Their lengths are 1.10 km and 0.9 km respectively. the slower train cross the faster train in --- seconds
A. 56 B. 48 C. 47 D. 26

7. A train passes a platform in 36 seconds. The same train passes a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, The length of the platform is
A. None of these B. 280 meter C. 240 meter D. 200 meter

8. Two trains having equal lengths, take 10 seconds and 15 seconds respectively to cross a post. If the length of each train is 120 meters, in what time (in seconds) will they cross each other when traveling in opposite direction?
A. 10 B. 25 C. 12 D. 20

9. A train is moving at a speed of 132 kmph. If the length of the train is 110 meters, how long will it take to cross a railway platform 165 mts long ?
A. 7.5 sec B. 8.5 sec C. 7 sec D. 8 sec

10. A train having a length of 1/4 mile , is traveling at a speed of 75 mph. It enters a tunnel 3 ½ miles long. How long does it take the train to pass through the tunnel from the moment the front enters to the moment the rear emerges?
A. 3 min B. 4.2 min C. 3.4 min D. 5.5 min

11. A train , having a length of 110 meter is running at a speed of 60 kmph. In what time, it will pass a man who is running at 6 kmph in the direction opposite to that of the train
A. 10 sec B. 8 sec C. 6 sec D. 4 sec

12. A 300 metre long train crosses a platform in 39 seconds while it crosses a post in 18 seconds. What is the length of the platform?
A. 150 m B. 350 m C. 420 m D. 600 m

13. A train , 800 meter long is running with a speed of 78 km/hr. It crosses a tunnel in 1 minute. What is the length of the tunnel (in meters)?
A. 440 m B. 500 m C. 260 m D. 430 m

14. Two train each 500 m long, are running in opposite directions on parallel tracks. If their speeds are 45 km/hr and 30 km/hr respectively, the time taken by the slower train to pass the driver of the faster one is
A. 50 sec B. 58 sec C. 24 sec D. 22 sec

15. Two trains are running at 40 km/hr and 20 km/hr respectively in the same direction. If the fast train completely passes a man sitting in the slower train in 5 seconds, the length of the fast train is :
A. 19 m B. 27 7/9 m C. 13 2/9 m D. 33 m

16. Two trains are running in opposite directions in the same speed. The length of each train is 120 meter. If they cross each other in 12 seconds, the speed of each train (in km/hr) is
A. 42 B. 36 C. 28 D. 20