

# AP Physics – Love That Homework – 1

Who you are \_\_\_\_\_

Per \_\_\_\_\_



*This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.* -- Western Union internal memo.

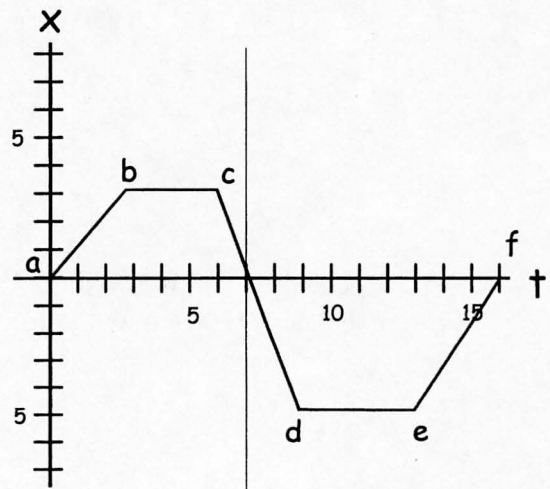
1. Give an example of two cars that have the same speed but different velocities.
2. You are driving down the road at a constant velocity. What are 3 ways you could safely change your velocity?
3. You nose out another runner to win the 100.000 m dash. If your total time for the race was 11.800 s and you aced out the other runner by 0.001 s, by how many meters did you win?
4. The speed of sound is 344 m/s. You see a flash of lightning and then hear the thunder 1.5 seconds later. How far away from the lightning strike are you?

5. A train travels from Denver to Bougainvillea in 5 hours and 37 minutes. If the average speed for the train was 76.5 km/h, how much distance did it cover?

6. You travel down the highway, starting from rest. You travel for 2.0 h at a speed of 105 km/h. Then you stop and eat your lunch for 30.0 min. Then you travel for 1.5 h at 75 km/h. Make a distance vs time graph of this motion.

7. A car travels along a straight section of road. A distance vs time graph illustrating its motion is graphed to the right.

- (a) Indicate every time  $t$  for which the cart is at rest.
- (b) Indicate every time interval for which the speed of the cart is increasing.
- (c) What is the velocity from: a - b, b - c, c - d, d - e, and e - f?



Position Time Graph