

Velocity Worksheet

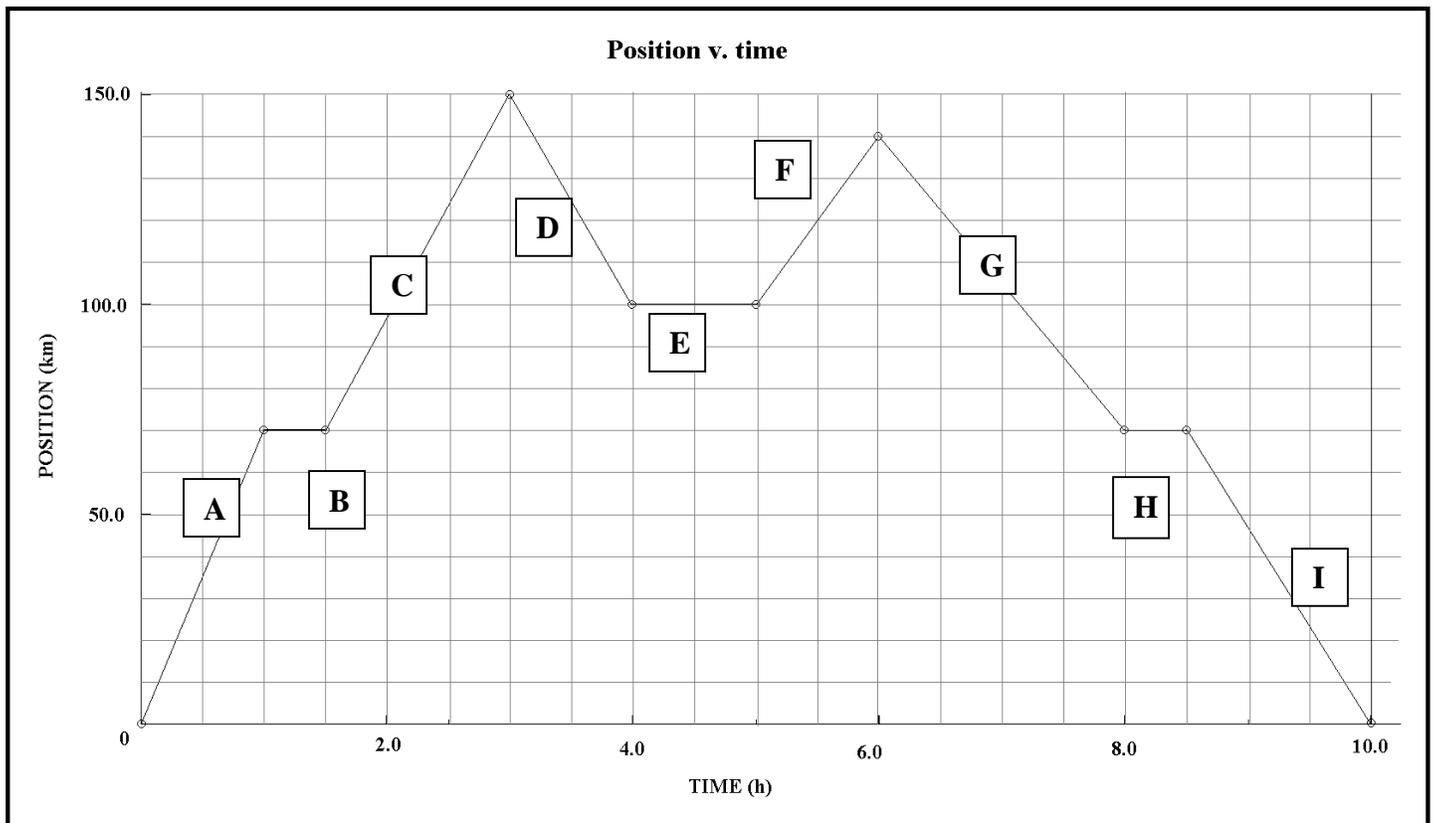
1. How can you be at rest and also moving about 107,000 km/h at the same time?
 2. Does the speedometer in a car measure the car's average speed or instantaneous speed? Explain your choice using the definition of each.
 3. Which is a vector quantity: speed or velocity? Explain why your choice is correct.
 4. What two controls on a car cause a change in speed? What control causes only a change in velocity?
 5. Car A is heading East at 25 m/s and car B is also heading East at 25 m/s. What is the relative velocity between car A and car B? How would the passenger in Car A describe Car B's motion?
 6. Car G is heading East at 25 m/s and Car X is heading East at 10 m/s. What is the relative velocity between car G and car X? How would the passenger in Car X describe Car G's motion?
 7. Car D is heading East at 25 m/s and Car T is heading West at 10 m/s. What is the relative velocity between car D and car T? How would the passenger in Car D describe Car T's motion?
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Solve all physics problems according to the following four steps.
Drawing a simple sketch of the problem may help.

- 1st. **Knowns** - List all the known variables.
 - 2nd. **Unknowns** - List the unknown variable.
 - 3rd. **Equation** -
 - a. Write the basic equation needed.
 - b. Rearrange the equation, if necessary, with the unknown variable to the left.
 - 4th. **Solve** -
 - a. Substitute the known values (numbers and units) for the letters in the equation.
 - b. Cancel units, if possible.
 - c. Do the arithmetic.
 - d. The answer should contain correct units and no fractions.
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8. What is the speed of a truck that travels 20 km in 10 minutes?
 9. What is the velocity of a bike that travels 2 miles west in 20 minutes?
 10. What is the distance traveled by a car that moves at a constant speed of 30 km/h for 3 hours?
 11. How long would it take a car to travel a distance of 75 km at a speed of 25 km/h?
 12. What is the total displacement of a motorcycle moving with a velocity of 2 m/s south in 50 s?

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13. Write a brief description of the object's motion as represented by the graph. Calculate the slope of each segment of motion in the graph below.



Leave this area blank...your teacher has something for you to do with this...

15. List three scalar quantities.

16. List two vector quantities.

17. You watch a dog on the sidewalk in front of your house walk back and forth one morning. You notice it walks 3 m to the right, then 1 m to the left, then 7 m to the right again and finally 5 m to the left and then sits down and stares at you. What total distance did the dog walk? What was the dog's total displacement as you watched?