Velocity Concepts

Concepts

1. What is the difference between velocity and speed?

2. Can two different objects have the same speed, but different velocities? Explain.

3. Can two different objects have the same velocities, but different speeds? Explain.

4. Can you have a constant speed, but not a constant velocity? Explain.

5. Can you have a constant velocity, but not a constant speed? Explain.

6. Car A moves 20 meters every 2 seconds while Car B moves 40 meters every 4 seconds. Which car is faster? Support your answer.

7. Person A travels 40 meters every 20 seconds while Person B travels 60 meters every 40 seconds. Which person is faster? Support your answer.

8. If all you are told is an object's velocity, can you figure out its speed?

9. If all you are told is an object's speed, can you figure out its velocity?

Problems

10. a. Bob moved 50 meters to the <u>right</u> in 100 seconds. What was his average velocity? What about average speed?

    b. Bill moved 40 meters to the <u>left</u> in 80 seconds. What was his average velocity? What about average speed?

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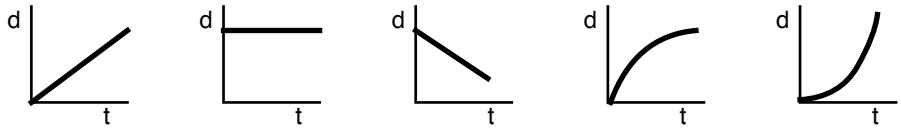
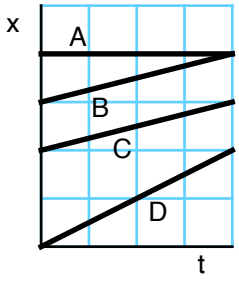
11. Which of the following distance vs time graphs shows a constant positive velocity?



12. Based on the position vs time graphs to the right:
    a. Which of the graphs would be going the fastest?

    b. Which two graphs have the same speed?

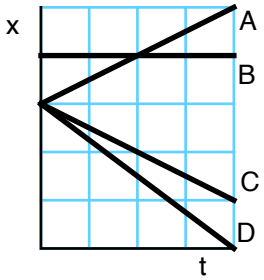
    c. Which graph shows a zero velocity?



13. Based on the position vs time graphs to the right:
    a. Which of the graphs would be going the fastest?

    b. Which of the graphs have the same speed? (Why not the same velocity?)

    c. Which of the graphs is moving backwards?



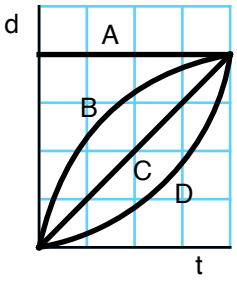
14. Based on the position vs time graphs to the right:
    a. Which of the graphs have a constant velocity?

    b. Which of the graphs show something moving backwards?

    c. Which graph shows a zero velocity?

    d. What is happening in curve B?

    e. What is happening in curve D?



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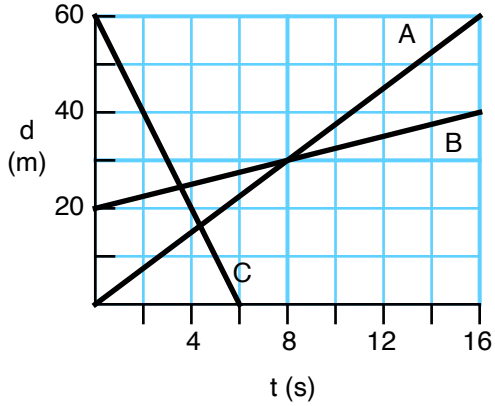
15. There are three different motions in the graph below. For each motion, calculate the velocity.



A) B) C)

Answers:

10. a) both 1/2 m/s b) v = -1/2 m/s & speed is +1/2 m/s

11) a 12. a) D b) B & C c) A 13. a) D b) A & C c) C & D

14. a) C b) none c) A d) slowing down e) speeding up

15. a) 3.75 m/s b) 1.25 m/s c) –10 m/s