

Name: _____

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1. The position versus time for a certain particle moving along the x axis is shown in Figure P2.1. Find the average velocity in the time intervals (a) 0 to 2 s, (b) 0 to 4 s, (c) 2 s to 4 s, (d) 4 s to 7 s, and (e) 0 to 8 s.

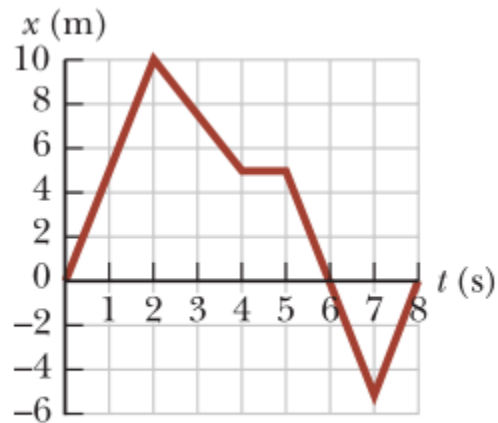


Figure P2.1 Problems 1 and 8.

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3. A person walks first at a constant speed of 5.00 m/s along a straight line from point **A** to point **B** and then back along the line from **B** to **A** at a constant speed of 3.00 m/s .
(a) What is her average speed over the entire trip? (b) What is her average velocity over the entire trip?

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5. A position–time graph for a particle moving along the x axis is shown in Figure P2.5. (a) Find the average velocity in the time interval $t = 1.50$ s to $t = 4.00$ s. (b) Determine the instantaneous velocity at $t = 2.00$ s by measuring the slope of the tangent line shown in the graph. (c) At what value of t is the velocity zero?

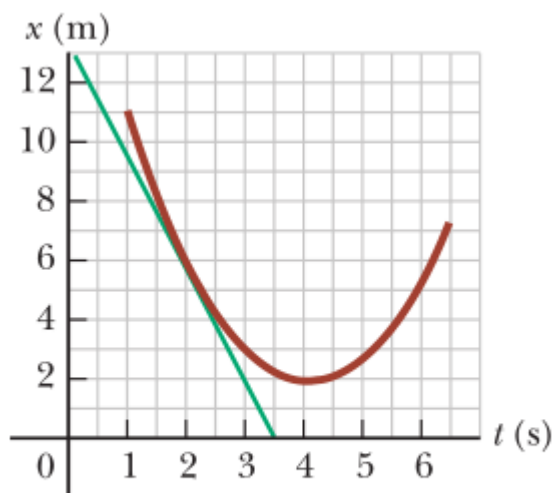


Figure P2.5

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7. **S** An athlete swims the length L of a pool in a time t_1 and makes the return trip to the starting position in a time t_2 . If she is swimming initially in the positive x direction, determine her average velocities symbolically in (a) the first half of the swim, (b) the second half of the swim, and (c) the round trip. (d) What is her average speed for the round trip?

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8. Find the instantaneous velocity of the particle described in Figure P2.1 at the following times: (a) $t = 1.0$ s, (b) $t = 3.0$ s, (c) $t = 4.5$ s, and (d) $t = 7.5$ s.

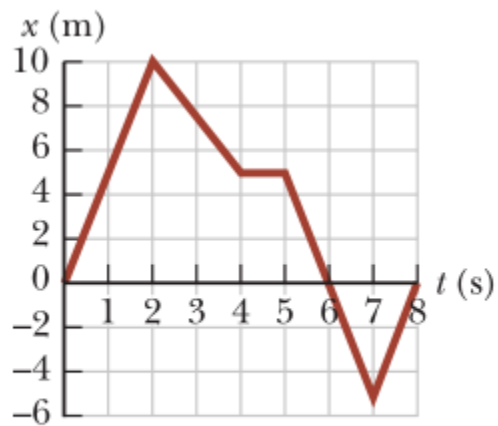


Figure P2.1 Problems 1 and 8.