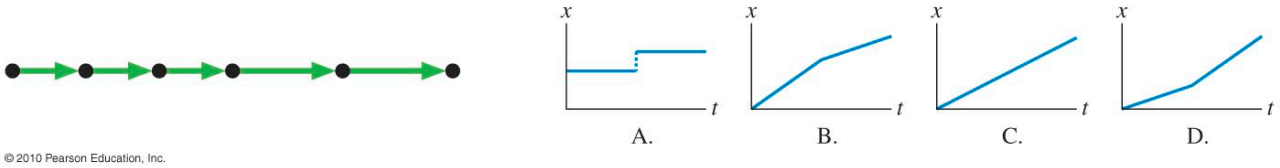
Physics 4A
Spring 2025

Name _____

Lab: 8:00 am 11:10 am 2:30 pm (circle one)

Quiz #1: Concepts of Motion and Kinematics in One Dimension

Problem 1 (1 point)
Which position-versus-time graph best describes the motion diagram to the left?



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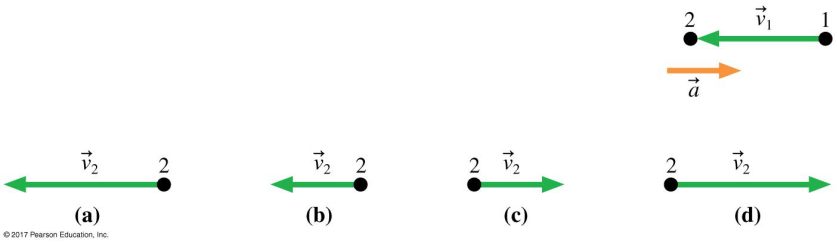
Problem 2 (1 point)
A particle undergoes acceleration $\vec{a}$ while moving from point 1 to point 2. Which of the choices shows the most likely velocity vector $\vec{v}_2$ as the particle leaves point 2?



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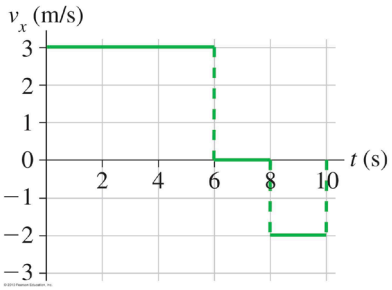
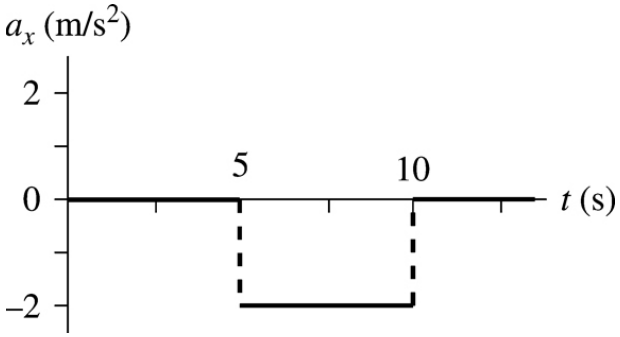
Problem 3 (3 points)
The density of a neutron star is about 1×10^{17} kg/m^3. Express this density in pounds/in^3 using the correct number of significant figures. (Note: 1.0 kg = 2.2 pounds)

Problem 4 (2 points)
The graph below shows the velocity of a moving object as a function of time. If the object starts with initial position of x_0 = -5.0 m, what is the object's position at t = 10 s?



Problem 5 (3 points)
An object moving horizontally has the acceleration-versus-time graph shown below. At $t = 0$ s, the object has initial position $x_0 = -10$ m. and initial velocity $v_{0x} = 10$ m/s.



a) Draw a velocity-versus-time graph for the object. Include a numerical scale on the horizontal and vertical axes.

b) Draw a motion diagram of the object's motion.