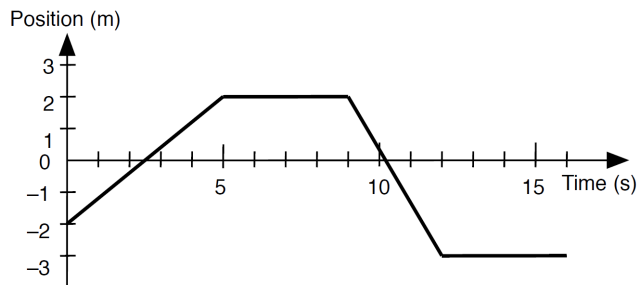


Unit 2

Kinematics Practice Test

Form P



1. The graph above shows the position as a function of time for a glider traveling without friction over an airtrack.

a. Sketch a graph of the velocity of the glider as a function of time.

b. Sketch a graph of the acceleration of the glider as a function of time.

c. What was the average speed of the glider between zero and five seconds?

d. What was the average speed of the glider between nine and 12 seconds?

e. What was the average speed of the glider for the entire time shown on the graph?
2. A box is placed at the top of a very slippery ramp and begins to slide down (ignore friction) and reaches the bottom of the 5.00 m long ramp with a speed of 7.50 m/s.

a. Find the acceleration of the box

b. How much time did the box take to slide down the ramp?

c. Where was the box located at 1.00 s?

2. Joe dropped a rock off of a cliff one fine morning and noticed that it took 4.20 s to fall to the ground below. He then took a second rock and tossed it upward. The second rock rose and then fell, reaching the ground below after a total of 7.42 s.

a. How high was the cliff?

b. With what speed did the first rock hit the ground?

c. What was the initial velocity of the second rock?

d. How high did the second rock go?

3. One day you find yourself standing in the middle of a large sheet of smooth ice. As you are wondering how this came to exist in Southern California, you see a hockey puck glide by with a constant speed of 3.60 m/s. When the puck is 1.50 m from you, a gentle breeze begins to blow in the direction directly opposite to the motion of the puck, causing it to slow down. Suppose the puck comes to a stop at a distance of 8.00 m away from you.

a. What is the acceleration of the puck caused by the breeze?

b. Where is the puck 3.00 s after the breeze started?

c. Where is the puck 30.0 s after the breeze started?

d. What was the speed and direction of the puck 30.0 s after the breeze started?