Physics
Projectiles, Form: A

Name: _____
Date: _____
Period: _____
Primary Peer Reviewer: _____

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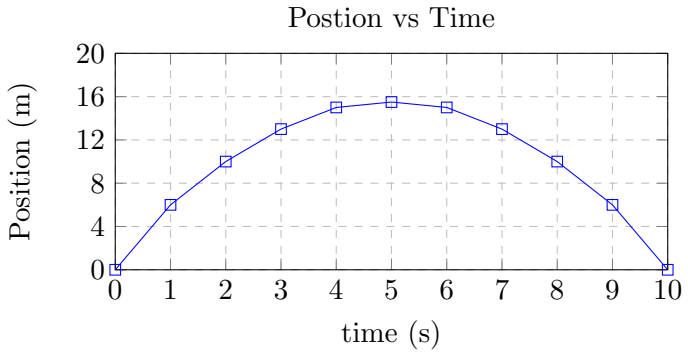
Section 1. Multiple Choice

The following information applies to questions 1-3:

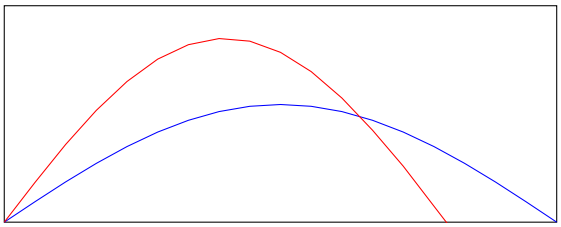
A projectile is launched multiple times. The angle of launch is increased from 0°to 90°in 5°increments. The following data is collected:



1. At what angle is the range of the projectile greatest?
   (a) 0°
   (b) 45°
   (c) 90°
   (d) The range is the same for all angles.
2. At what angle was the projectile in the air the longest?
   (a) 0°
   (b) 45°
   (c) 90°
   (d) The time in the air is the same for all angles.
3. What two angles result in the same range?
   (a) 30°and 40°
   (b) 30°and 50°
   (c) 30°and 60°
   (d) 30°and 70°
4. At the top of its path, a projectile's acceleration is -
   (a) 0 m/s^2
   (b) 9.81 m/s^2 downward
   (c) 9.81 m/s^2 horizontally
   (d) cannot be determined without more information.

5. Two projectiles are launched at the same speed, but different angles. Their trajectories are shown below:

Figure 1: Two Projectiles



If projectile A was launched at a 45 degree angle to the ground, projectile B was launched at an angle -

(a) greater than 45°

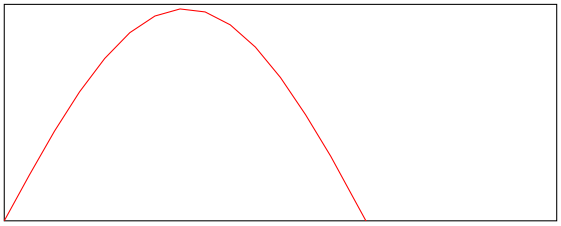
(b) less than 45°

(c) equal to 45°

(d) there is no way to determine what angle projectile B was launched at.

6. A projectile's trajectory is shown below:

Figure 2: A Projectile's Path



At Point P, the horizontal velocity of the projectile is -

(a) 0 m/s

(b) 9.81 m/s downward

(c) equal to the initial horizontal velocity.

(d) impossible to determine.

7. At Point P, the vertical velocity of the projectile is -

(a) 0 m/s

(b) 9.81 m/s downward

(c) equal to the initial vertical velocity.

(d) impossible to determine.

Section 2. Free Response

8. A projectile is fired from a cannon at a 30-degree angle with the ground and an initial velocity of 100 m/sec. Assuming no air resistance and g=9.81 m/s^2,

   (a) calculate the time it will spend in the air.

   (b) Calculate the maximum height of the cannonball.

   (c) What is the distance the cannonball lands from the cannon?

Answer Key for Exam A

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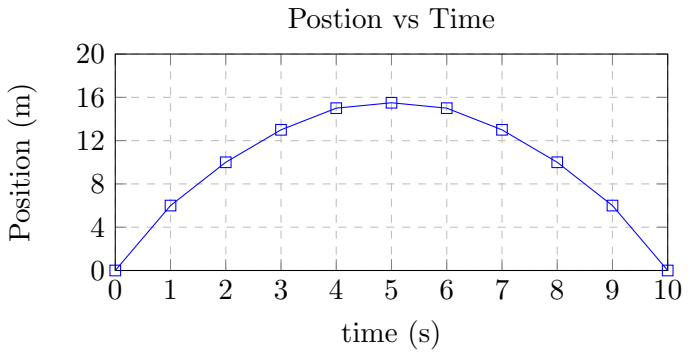

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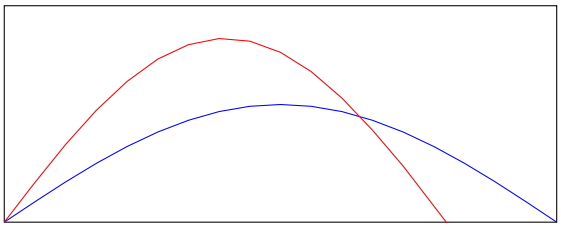

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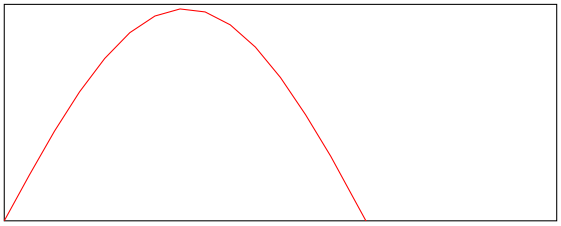

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