CHERCHER SECONDARY SCHOOL

Grade 12Th Physics Work Sheet on Projectile Motion

You May Refer the Information Given Below When You Work On Some Of The Questions

Constant	Symbol	value
Acceleration due to gravity	G	$10m/s^2$
$Sin45°=cos45° =\frac{\sqrt{2}}{2}$		
$Sin60° =cos30° =0.8$		
$Sin30° = cos60° =0.5$		

1. A bullet is fired with an initial speed v at angle θ with the horizontal. It takes a time T to reach its maximum vertical displacement h_{max}. It hits the target point a distance R away and exactly in the horizontal level to the point where it was fired. Which one of the following statement is **not correct** about the motion of the bullet?

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A. The bullet hits the target at a time 2T after it was fired

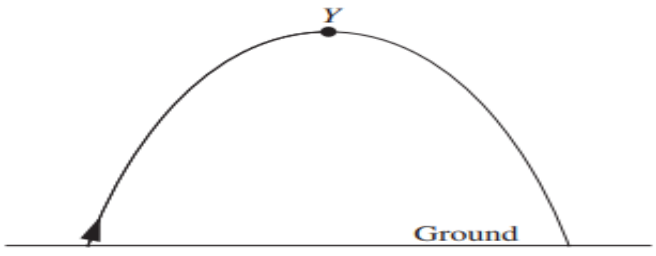
B. h_{max} is directly proportional to the initial speed v

C. R will be maximum if $\cos\theta = 2\sqrt{2}$

D. θ will be different from 90^0 to hit the target at a distance R

2. The angle of projection for the range of projectile to be equal to its maximum height is **A**. $\theta=\tan^{-1}(2)$ **B.** $\theta=\tan^{-1}(3)$ **C.** $\theta=\tan^{-1}(4)$ **D.** $\theta=\tan^{-1}(2/\sqrt{3})$

3. An object is projected upwards from the ground, and follows a path as represented in the diagram.



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Which of the following describes the projectile's horizontal and vertical acceleration at point *Y*?

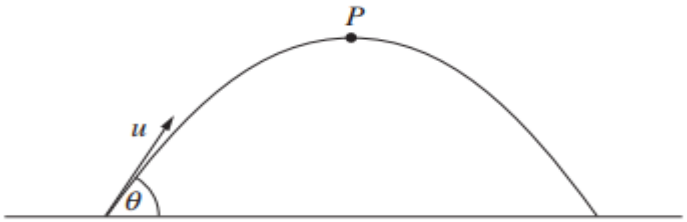
A. Both the horizontal and vertical acceleration are zero.

B. Both the horizontal and vertical acceleration are 9.8 m/s^2.

C. The horizontal acceleration is 9.8 m/s^2 and the vertical acceleration is zero.

D. The horizontal acceleration is zero and the vertical acceleration is 9.8 m/s^2

4. A ball is launched at speed u and angle θ from the horizontal as shown. *P* is the highest point reached by the ball.



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A. Zero **B.** u **C.** $u\cos\theta$ **D**. $u\sin\theta$

5. A golf drivers her golf ball from the tee down the fairway in a high arcing shoots. When the ball is at the highest point of its flight?

A. The velocity and acceleration are both zero

B. The x-velocity is zero and the y-velocity is zero.

C. The x-velocity is non-zero, but the y-velocity is zero

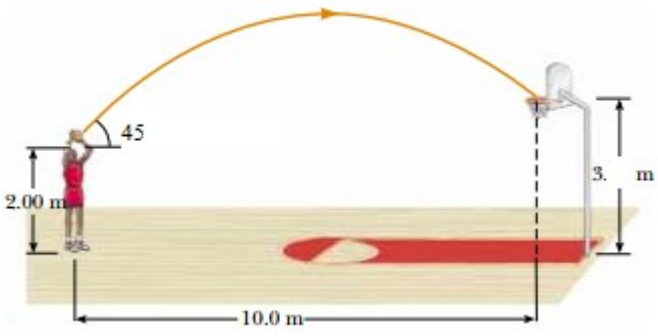
D. The velocity is no-zero, but the acceleration is zero

6. The horizontal and vertical components of projectile motions are independent of each other. What is the common variable for both components?

A. Velocity **B.** Time **C**. Acceleration **D.** Height

7. A basketball player who is 2m tall is standing on the floor 10m from the basket, as shown in Figure below. If he shoots the ball at a 45° angle with the horizontal, at what initial speed must he throw so that it goes through the hoop without striking the backboard? The basket height is 3m.

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A. 6.9m/s **B.** 10.7m/s **C.** 2.6m/s **D.** 1m/s

8. If you play football you kicked the ball horizontally, then the ball you kicked rich maximum height, which of the following is **not** correct about the ball you kicked?

A. The horizontal velocity of ball you kicked is perpendicular to its acceleration.

B. When the ball you kicked is rich maximum height its vertically velocity is zero

C. The maximum height of ball you kicked is directly proportional to the square of initial velocity. **D**. When the ball you kicked is rich maximum height its vertically velocity is non-zero

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9. A projectile is fired at an angle of 30° from the horizontal with some initial speed. Firing the projectile at what other angle results in the same horizontal range if the initial speed is the same in both cases? (Neglect air resistance)

A. 45° **B.** 90 ° **C**. 60° **D.** 30°

10. A missile is fired for maximum range with an initial velocity of 10 m/s. The range of the missile is

A. 40 m **B.** 10 m **C**. 20 m **D.** 100 m

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