

**GNSC 1110L LAB PRE-TEST**

**EXP #3 - PROJECTILE MOTION**

1. What is the objective of this experiment?
2. What will a target paper be used for?
3. What will a plumb bob be used for?
4. What will a carbon paper be used for? Will it be taped to the table?
5. In this experiment a ball will be given an initial horizontal velocity after you pull the trigger of a launcher. Once the ball is projected the motion is actually a combination of two components of motion--free-fall in the downward y direction and uniform motion in the x direction. Neglect air friction completely. Write down the equation of motion in the x direction and y direction.
6. True or False

In this experiment a ball will be given an initial horizontal velocity after you pull the trigger of a launcher. This muzzle velocity will remain constant throughout the flight.

7. The horizontal distance the projectile travels is called its range. How is the range related to its muzzle velocity in this experiment? Write down the equation.

8. True or False

In this experiment a ball will be given an initial horizontal velocity after you pull the trigger of the launcher. The time it takes for the ball to hit the target paper is the same as the time it takes if the ball is dropped from that vertical height to the table.

9. For this projectile motion, what quantities are constant?

=====

**ANSWERS:**

2. To mark the location where the projectile (yellow ball) lands on the table.
- 3 To help find the location of  $X_0$ , the point where the ball leaves the muzzle of the spring gun
5. x-direction - (eq.2) in the lab manual y-direction - (eq.1) in the lab manual
6. True
7. (eq.2) in the lab manual

**8. True**

**9. Horizontal velocity and acceleration of gravity**