

Course Code:ESC106A
Course Title: Construction Materials and Engineering Mechanics

Lecture No. 60:
Numerical on Projectiles

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Lecture Intended Learning Outcomes

At the end of this lecture, student will be able to:

- Solve problems on horizontal projection, inclined projection on both horizontal and inclined plane are analyzed neglecting air resistance



Contents

- Numerical problems on projectiles

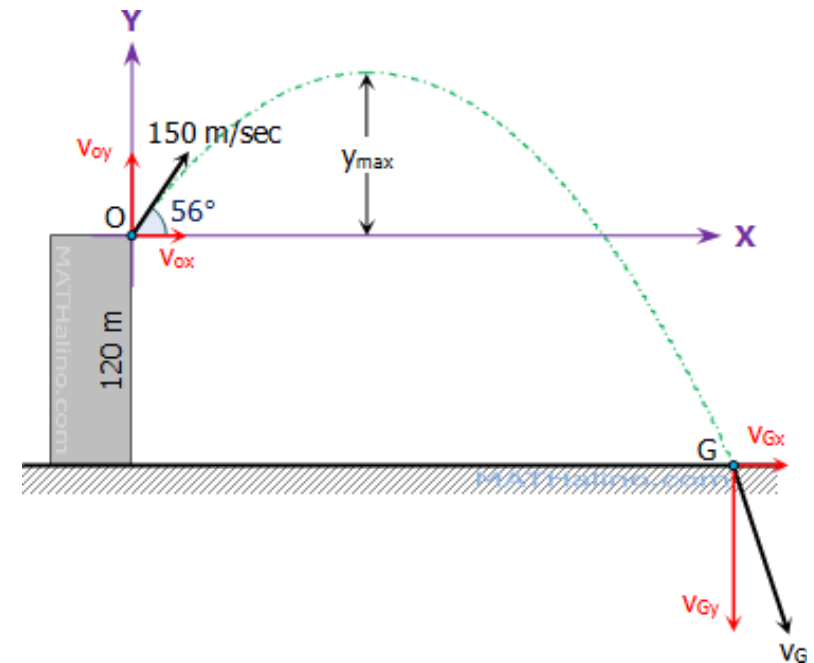


Projectiles: Problem 1

A bullet is fired at an initial velocity of 150 m/s and an angle of 56° at the top of a 120 m tall building. Neglecting air

resistance, determine the following:

1. The maximum height above the level ground that can be reached by the bullet
2. The time for the bullet to hit the ground
3. The velocity with which the bullet will hit the ground



Ans: $H_{\max} = 908.19 \text{ m}$
 $t = 26.284 \text{ sec}$
 $V_G = 157.656 \text{ m/sec}$



Summary

- The horizontal distance through which the projectile travels in its flight is called the horizontal range or simply range of the projectile
- The time interval during which the projectile is in motion is called the time of flight

