

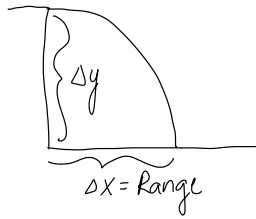
# Lab: Projectile Motion

2D Kinematics:

X-comp	y-comp
$\Delta X = v_{ox} t$	$\Delta y = -\frac{1}{2}gt^2 + v_{oy} t$
$v_x = v_{ox}$	$v_y = -gt + v_{oy}$
$a_x = 0$	$a_y = -9.81 \text{ m/s}^2$
$v_{ox} = v_o \cos \theta$	$v_{oy} = v_o \sin \theta$

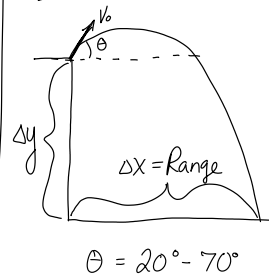
Objective 1: Finding  $v_o$

$$\theta = 0, \sin \theta = 0, \cos \theta = 1$$



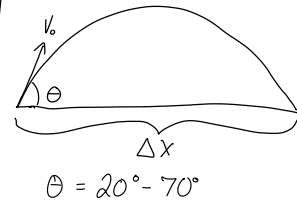
Objective 2: How  $\theta$  affects Range

Case 1: Off the table



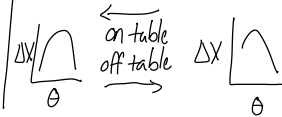
Case 2: On the table

$$\Delta y = 0$$



Lab Report to Include

- Data
- Analysis @  $\dot{A}$
- Graphs X 2, by hand w/ fit



Q5  $\dot{A}$  7

- Solve  $\Delta y$  for  $t$  w/ Quadratic formula
- Use  $t$  to find  $\Delta X$

**Follow Safety Rules!**