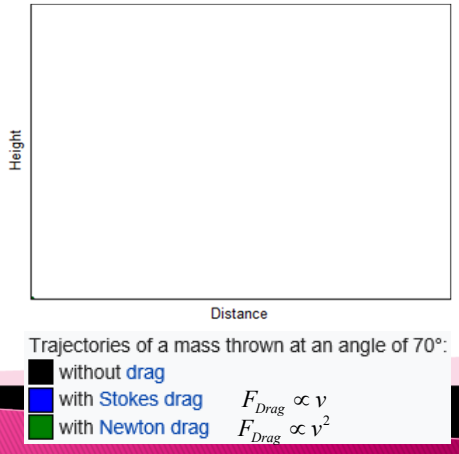
- Lab notebooks over break
- Projectile motion
- Uniform circular motion
- Forces

PHYS 210
General Physics I



Motion in 2-D: Projectile Motion

- For now, ignore air resistance effects (trajectory is therefore parabolic)
- Vertical & horizontal motions independent
- Vertical motion is accelerated at 9.8 m/s^2:
  - $y - y_o = (v_o \sin \theta_o)\, t - \frac{1}{2} g t^2$
  - $v_y = v_o \sin \theta_o - g t$
  - $v_y^2 = (v_o \sin \theta_o)^2 - 2 g (y - y_o)$
- Horizontal motion is at a constant speed:
  - $x - x_o = (v_o \cos \theta_o)\, t$

A ball is shot from a launcher at a speed v_i and launch angle θ_i . The launcher is mounted on a table that is *118 cm* above the floor. Find the time of flight and the horizontal range.

Compare these results to the *experimental results* we determine from launching the ball.

Photogate info:

$\Delta s =$

$t_{1pg} =$

$t_{2pg} =$

$\theta_i =$

$$v_i = \frac{\Delta s}{t_{2pg} - t_{1pg}} =$$

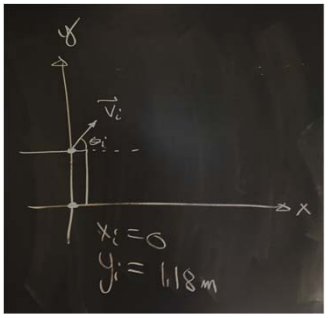
Experiment results:

$R \equiv \Delta x_{\text{exp}} = x_f - x_i =$

$t_1 =$

$t_2 =$

$\Delta t_{\text{exp}} = t_2 - t_1 =$



Have a great Fall Break!