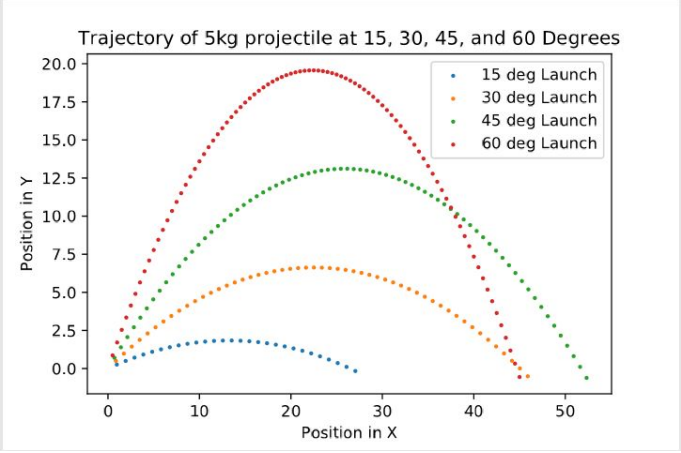
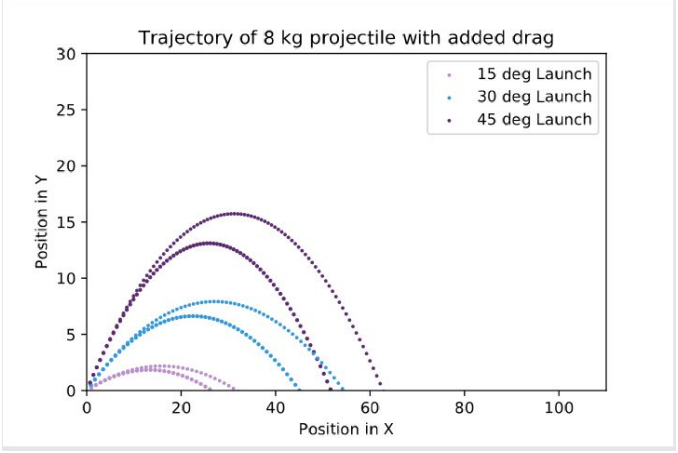
Jessica Hamilton
Weekly Problem 2
Projectile Motion Lab

1. Find the total distance travelled and the total time it took for trial 1 where I launch a 5 kg ball at 15 degrees with initial velocity of 10 m/s.
    a. The ball travels 27.0459 meters and in a total of 2.7 seconds.
    b. Calculation with the given change in time, total distance in x direction is 26.08 meters
2. Predict what air resistance will change/ how it will affect the trajectory of the ball
    a. Air resistance will decrease the velocity since the acceleration is changing now in both the x and y directions. Therefore the ball will not travel as far as if would without air resistance.
3. What is the determined effect of air resistance using the graphs
    a. Using the graphs, visually you can determine the ball does not travel as far in the positive y but does in fact travel a slightly longer distance in the positive x direction. This will have the ball travel for a longer amount of time from starting position and finishing position.
4. What is terminal velocity?
    a. For a different scenario, a 2 kg ball at 9500m thrown at 2 km/s at 15 degrees,





terminal velocity is about 70 km/s.