#  Lab 4: Projectile Motion

##  What You Need To Know:

### The Equipment

## What You Need To Do:

### Part 1: Horizontal Launch to Find Initial Speed.

1. (Instructor option 211, required 225)

Work through the earlier steps to find the following equation:

$$v\_{0\_{x}}=x\*\sqrt{\frac{g}{2y}}$$

|  |
| --- |
| $$v\_{0}\_{x}$$ |
|  |

### Part 2: Comparison with Velocity Measurement, Device Test

Calculate a % difference between the value and the value you calculated in part 1. Discuss possible causes of any difference.

Does the angle of the launch have much effect on the speed measurement of the device? What might cause disagreement?

### Part 3: Angled Launch

|  |  |  |
| --- | --- | --- |
| $$θ (°)$$ | $$h$$ | $$x (m)$$ |
|  |  |  |

1. (Instructor option 211, required 225)

Show where the equations below come from.

$$t=\frac{v\_{0}\sin(\left(θ\right))+\sqrt{\left(v\_{0}\sin(\left(θ\right))\right)^{2}+2gh}}{g}, x\_{prediction}=v\_{0}\cos(\left(θ\right))\*t$$

## Conclusion

Follow the lab report guide to write a conclusion on this lab.

Submit your completed excel sheet with your data along with this report.

Conclusion