Name_____Period____ Org. Due Date 10-25-12

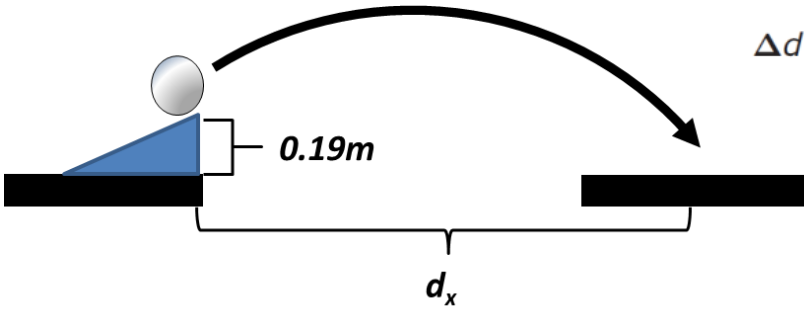
Late Work Lab: Projectiles Launched at an Angle | Physics

Using the trigonometry formulas and the kinematic formulas, find the range of the projectile. Be sure to fill in each box and show your work.

$\sin(\theta) = \frac{O}{H}$

$\cos(\theta) = \frac{A}{H}$

$\tan(\theta) = \frac{O}{A}$



$\Delta d = v_i \Delta t + \frac{1}{2} a \Delta t^2$

$a = \frac{v_f^2 - v_i^2}{2\Delta d}$

$a = \frac{v_f - v_i}{\Delta t}$

Velocity of the marble 3.2 **m/s** **Inclination of the ramp** 60 **°**

Finding the x and y components:

Find the V_x & V_y using the trig functions.

V_x =_____

V_y =_____

y-component manipulations:

Find how long the marble will take to reach its apex. This is the highest point of its trajectory?

V_f =

V_i=

t =

d_y =

a_g =

t_1=_____

Find the maximum height the marble attained (remember V_f is 0 m/s). Be sure to add the height of the ramp 0.19m to your maximum height from the jump.

V_f =

V_i=

t_1 =

d_y =

a_g =

$d_{y\ max}$=_____

Based on this height, find the time it would take to fall from the apex (remember V_i is 0 m/s now).

V_f =
V_i=
t =
d_y =
a_g =

t_2=_____

Find the total time (t_1+t_2) the object is in the air (remember this is the time it took to get to its apex and the time of the fall).

t_{total}=_____

Finding d_x:

Find the distance the marble landed from the ramp?

d_x=_____

Follow-up:

What variables could not be controlled for this experiment?

_____

_____

_____

What could be done different to this experiment to allow for greater accuracy and precision?

_____

_____

_____