

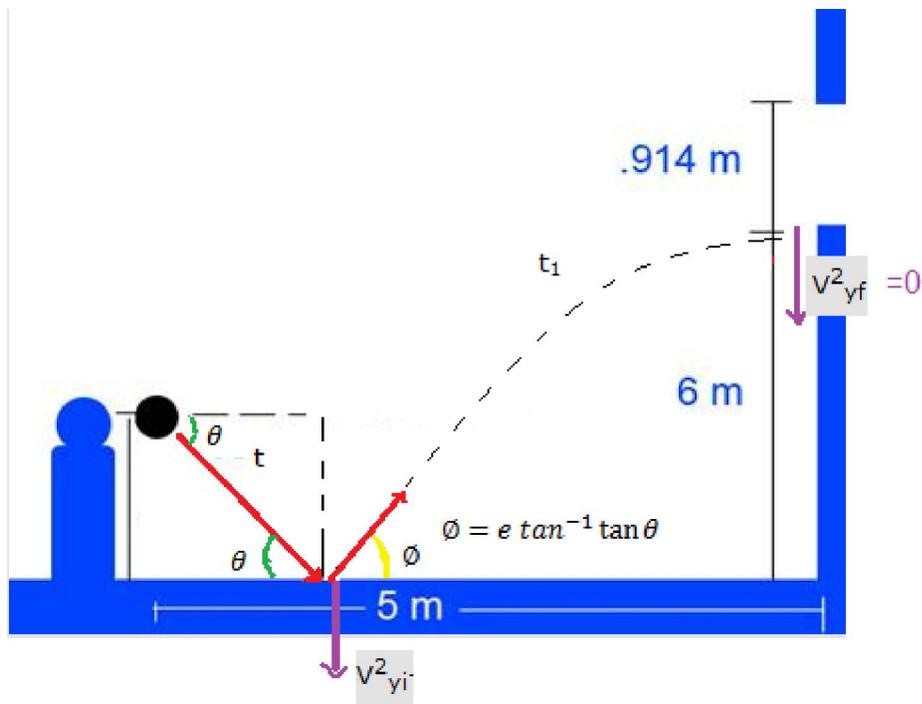
Let time t for projected downward motion and t_1 for projected upward motion.

Using $X_1 = V_0 \cos \theta t$ and $Y_1 = V_0 \sin \theta t + 0.5gt^2$ to get your X_1 .

You also can usage:

$$\tan \theta = 1.829/X_1$$

After that you get the $X_2 = V_0 \cos \theta t_1$ to find $Y_2 = V_0 \sin \theta t_1 - 0.5gt_1^2$. But that height is lower the 6 m. So :



Let say, the maximum height it can pass through is 6 m . $V_{yf} = 0$.

Apply $V_{yf}^2 = V_{yi}^2 - 2gY_2$, you would get new value of V_{yi} , you should be changed. Because

$V_{iy} = V_1 \sin \theta$ to get your new value of V_1 . Then same method to $V_1 = eV_0$.

Finally, you have new value of V_1 then you can get the velocities of the ranges X_1 and X_2 .

Just sub. Into $V_{x1} = V_0 \cos \theta$ and $V_{x2} = V_1 \cos \phi$.