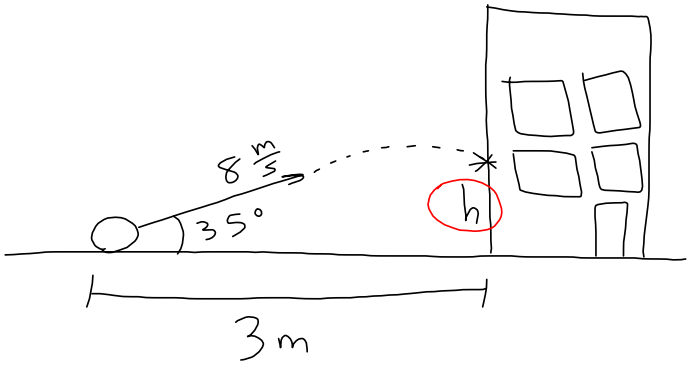
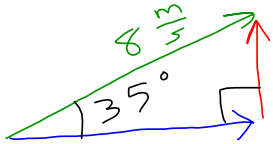


answer in meters.

round to nearest 10^{th}.

$\Rightarrow$ 1.07 m



$V_y = 8\frac{m}{s}\sin(35°) = 4.59\ m/s$

$V_x = 8\frac{m}{s}\cos(35°) = 6.55\ m/s$

X-direction

$V = 6.55\frac{m}{s}$

$a = 0$

$\Delta X = 3m$

$\Rightarrow t = \frac{\Delta X}{V} = \frac{3m}{6.55\frac{m}{s}} = 0.46s$

y-direction

How high is the ball after 0.46 s?

$y_i = 0$

$y_f = ?$

$a_y = -9.81\frac{m}{s^2}$

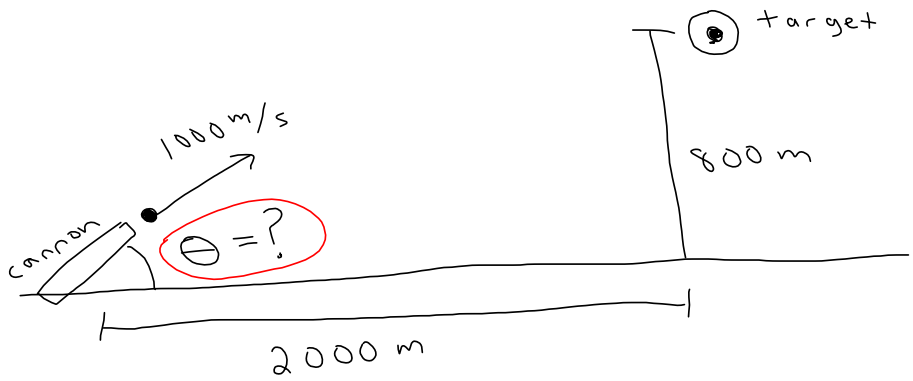
$V_{yi} = 4.59\frac{m}{s}$

$t = 0.46s$

$y_f = y_i + V_{iy}t + \frac{1}{2}a_y t^2$

$y_f = 0 + (4.59)(0.46) - 4.9(0.46)^2$

$= \boxed{1.07\ m}$



x-dir.

$x_i = 0$

$x_f = 2000\ m$

$a_x = 0$

$V_{xi} = 1000 \frac{m}{s} \cos\theta$

y-dir

$y_i = 0$

$y_f = 800\ m$

$a_y = -9.8\ m/s^2$

$V_{yi} = 1000 \frac{m}{s} \sin\theta$

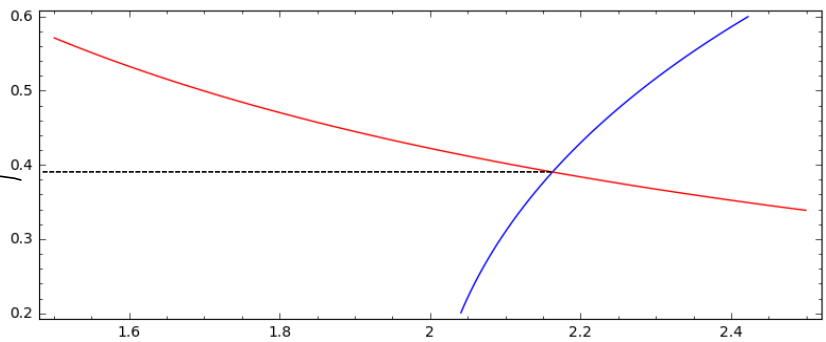
$2000 = 1000 \cos\theta\, t$

$800 = 1000 \sin\theta\, t - 4.9\, t^2$

2 equations w/ 2 unknowns

$\Rightarrow \theta = 22.3^\circ$

```
t, th = var("t th")
p1 = implicit_plot(2000 == 1000*cos(th)*t, (t, 1.5, 2.5), (th, 0.2, 0.6))
p2 = implicit_plot(800 == 1000*sin(th)*t - 4.9*t*t, (t, 1.5, 2.5), (th, 0.2, 0.6), color="red")
g = Graphics()
g += p1
g += p2
g.show()
```



0.39 rad = 22.3°