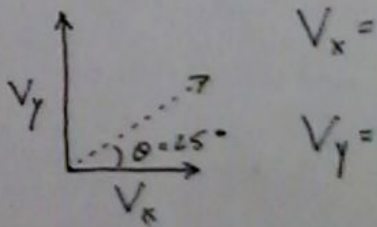


Name:

Adam Vinatieri kicks a football at an angle of 25° and a speed of 20 m/s . Use $g = 10\text{ m/s}^2$.

1.) Find the V_x and V_y components of initial velocity:



$$V_x =$$

$$V_y =$$

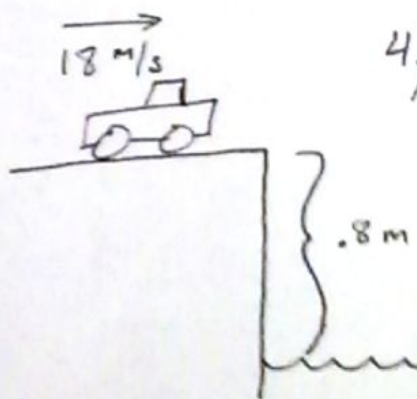
2.) a.) How long will the ball be in the air?

b.) How high did the ball travel (maximum height)?

c.) How far horizontally did the ball travel?

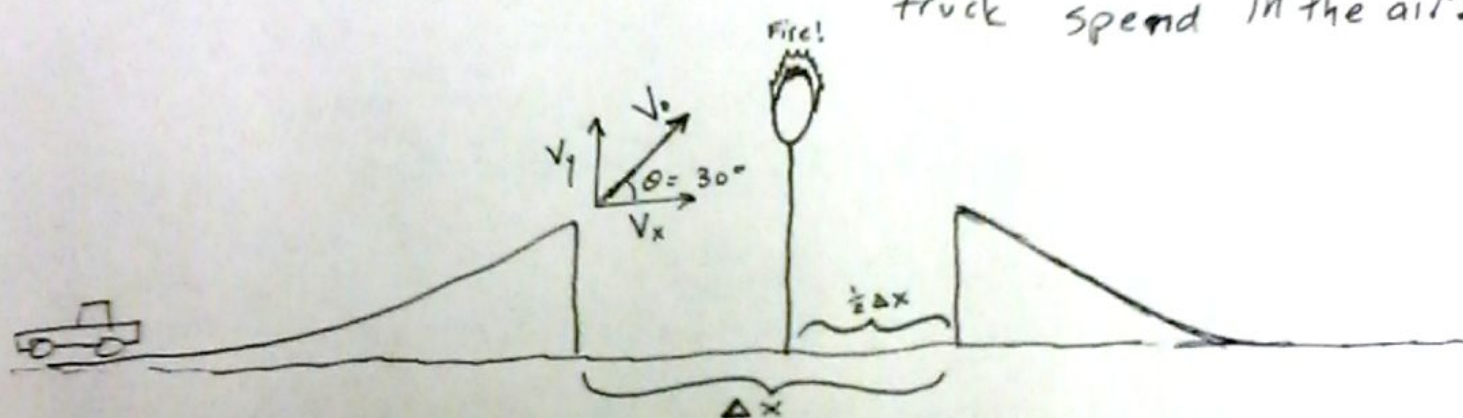
d.) What was the impact speed of the football?

3.) If the lower bar on the field goal post is 3 meters high and Adam kicks from 15 meters away, will he score? Why or why not? Explain.



4.) How far will the truck travel before hitting the water?

5.) How much time will the truck spend in the air?



6.) The initial velocity of the truck off the ramp is $v_0 = 75 \text{ m/s}$ at an angle of 30° .

a.) What is the maximum Δx in order to successfully jump?

b.) Given the maximum Δx calculated in part a, how much time will the truck spend in the air?

c.) If a ring of fire is placed a $\frac{1}{2} \Delta x$, how high must the bottom of the ring reach?