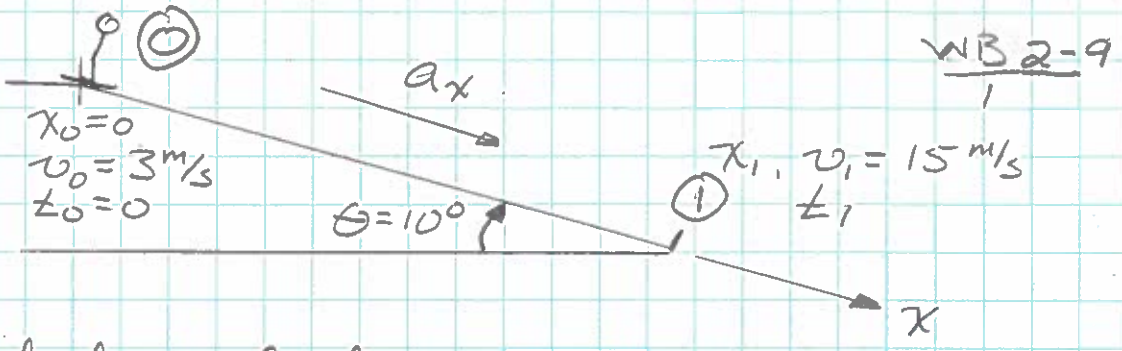

Constant acceleration: $a_x = g \sin\theta$

$0 \rightarrow 1$

$= 1.702\ m/s^2$

a.) Find x_1:

For a_x = const.

$$v_1^2 = v_0^2 + 2a_x \Delta x \qquad \Delta x = x_1 - \cancel{x_0}^{\,0}$$

$$= v_0^2 + 2a_x x_1$$

So:

$$x_1 = \frac{v_1^2 - v_0^2}{2a_x} = \underline{63.45\ m}$$

b.) Find t_2:

For a_x = const.

$$v_1 = v_0 + a_x \Delta t \qquad \Delta t = t_1 - \cancel{t_0}^{\,0}$$

$$= v_0 + a_x t_1$$

So:

$$t_1 = \frac{v_1 - v_0}{a_x} = \underline{7.051\ s}$$