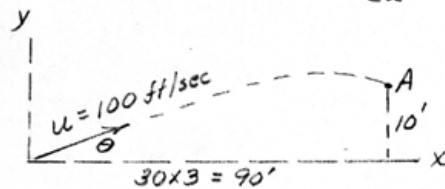


2/82

$$y = x \tan \theta - \frac{gx^2}{2u^2} \sec^2 \theta$$



$$\text{Let } m = \tan \theta$$

$$\sec^2 \theta = 1 + \tan^2 \theta = 1 + m^2$$

$$y = xm = \frac{gx^2}{2u^2} (1 + m^2), \quad m^2 - \frac{2u^2}{gx} m + \left( \frac{2u^2 y}{gx^2} + 1 \right) = 0$$

$$\text{At A, } m^2 - \frac{2(10^2)^2}{32.2(90)} m + \left( \frac{2(10^2)^2 10}{32.2(90)^2} + 1 \right) = 0$$

$$m^2 - 6.901m + 1.7668 = 0$$

$$m = \frac{6.901}{2} \pm \frac{1}{2} \sqrt{(6.901)^2 - 4(1.7668)}$$

$$= \frac{6.901 \pm \sqrt{40.56}}{2} = 0.266 \text{ or } 6.635$$

$$\theta = \tan^{-1} m = \underline{14.91^\circ} \quad (\text{or } 81.4^\circ)$$