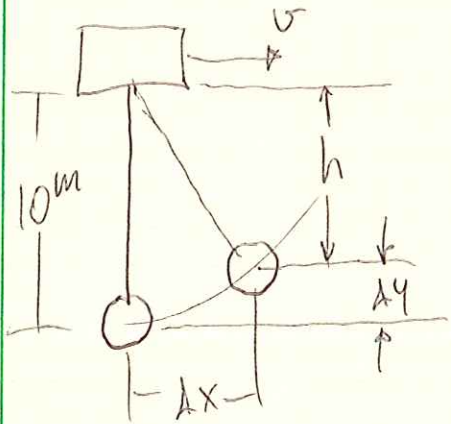


PROB. 13.8

$$v_1 = 3 \frac{m}{s}, v_2 = 0, \text{ FIND } \Delta x$$



$$T_1 + U_2 = T_2$$

$$U_2 = -W\Delta y$$

$$T_1 = \frac{1}{2}mv_1^2, T_2 = 0$$

$$\frac{1}{2}\left(\frac{W}{g}\right)v_1^2 - W\Delta y = 0, \Delta y = \frac{1}{2}\frac{v_1^2}{g} = \frac{1}{2}\frac{\left(3\frac{m}{s}\right)^2}{\left(9.81\frac{m}{s^2}\right)}$$

$$\Delta y = 0.4587^m$$

$$h = 10 - \Delta y = 9.541^m$$

$$\Delta x^2 + h^2 = 10^2$$

$$\Delta x = \sqrt{100 - (9.541^m)^2} = \boxed{2.994^m}$$