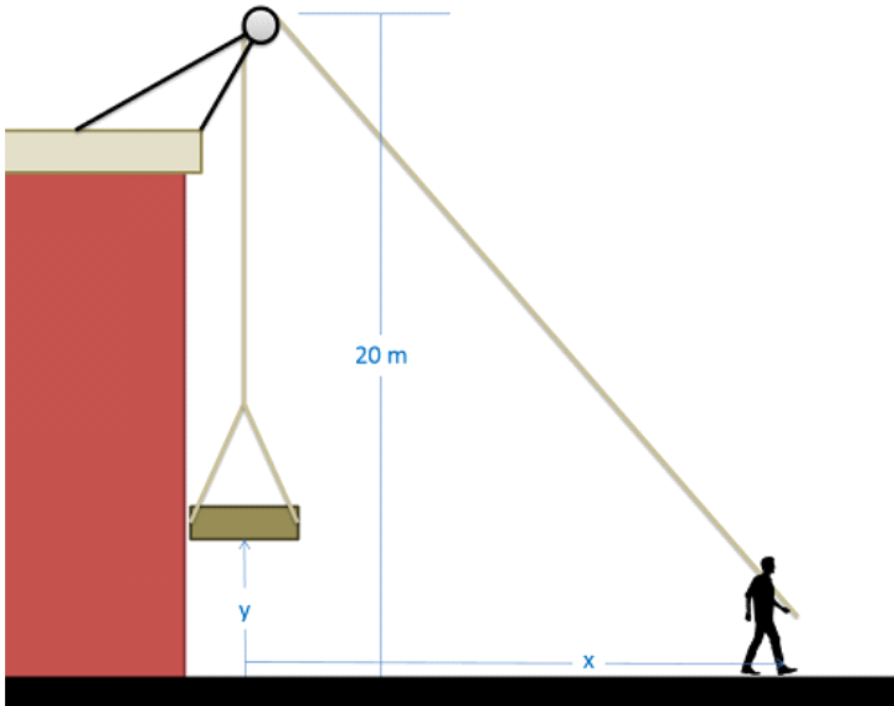# Question 2:

A man has a pulley hooked up a pulley, a rope, and a platform as shown below to lift loads up onto a nearby rooftop. If x is currently 15 meters, y is currently 5 meters, and the man is walking away from the building at a rate of .5 meters per second, what is the current velocity of the platform?

$$L = ? = (20-y) + \sqrt{x^2 + 20^2}$$

$$\dot{L} = 0 = -\dot{y} + \frac{1}{2}(x^2 + 20^2)^{-\frac{1}{2}}(2x)\,\dot{x}$$

$$\uparrow \qquad\qquad \uparrow \quad \uparrow$$

$$15 \qquad\qquad 15 \quad .5$$

$$\dot{y} = \frac{2(15)(.5)}{2\sqrt{15^2 + 20^2}} = \boxed{.3\, m/s}$$