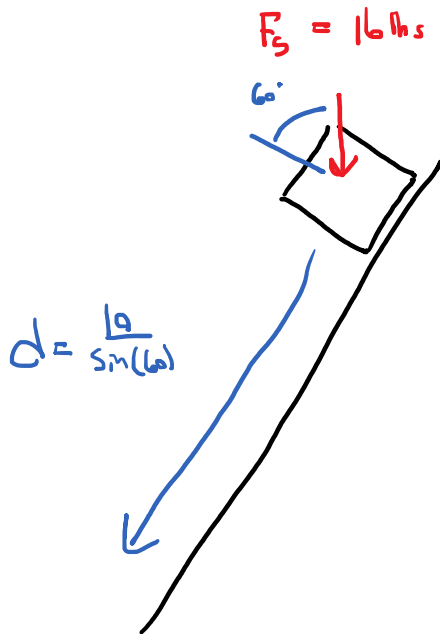
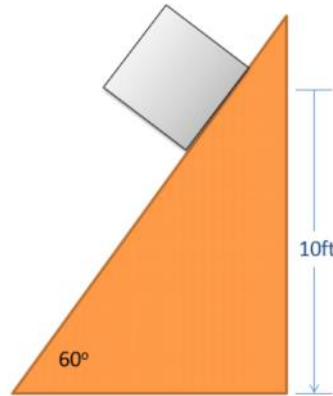


Problem 1

A 16 pound crate slides down a ramp as shown to the below. The crate is released from a height of 10 feet.

- What is the work done by gravity?
- What is the change in gravitational potential energy?



$$\begin{aligned} \text{a) } W &= (F)(d) \\ W &= (16 \text{ lbs} \sin(60)) \left(\frac{10 \text{ ft}}{\sin(60)} \right) \\ \boxed{W &= 160 \text{ ft} \cdot \text{lbs}} \end{aligned}$$

$$\begin{aligned} \text{b) } \Delta PE &= mgh \\ \Delta PE &= (16 \text{ lbs})(-10 \text{ ft}) \\ \boxed{\Delta PE &= -160 \text{ ft} \cdot \text{lbs}} \end{aligned}$$