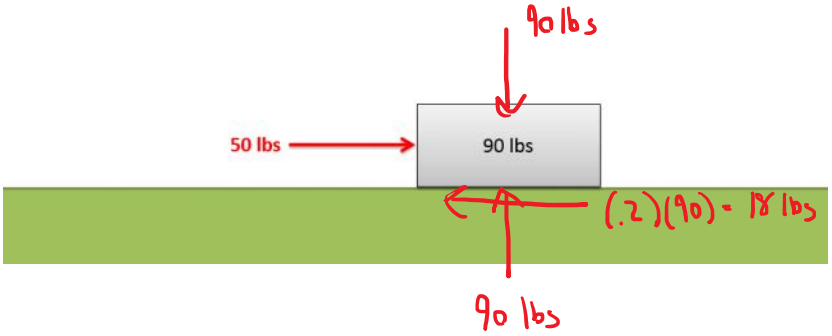
Problem 2

Force Method in One Dimension (Practice Problem)

- Repeat the procedure for the same block on a surface with a coefficient of friction of $\mu = .2$
  - What is the rate of acceleration of the block?
  - What is the velocity and displacement three seconds after the force is applied?



a) $\Sigma F_x = 50 - 18 = ma_x$

$32 \text{ lbs} = \frac{90}{32.2} a_x$

$\boxed{a_x = 11.45 \text{ ft/s}^2}$

b) $V(t) = at + \cancel{V_0^0} = (11.45)(3)$

$\boxed{V(3) = 34.35 \text{ ft/s}}$

$S(t) = \frac{1}{2}at^2 + \cancel{V_0^0 t} + \cancel{S_0^0} = \frac{1}{2}(11.45)(3)^2$

$\boxed{S(3) = 51.52 \text{ ft}}$