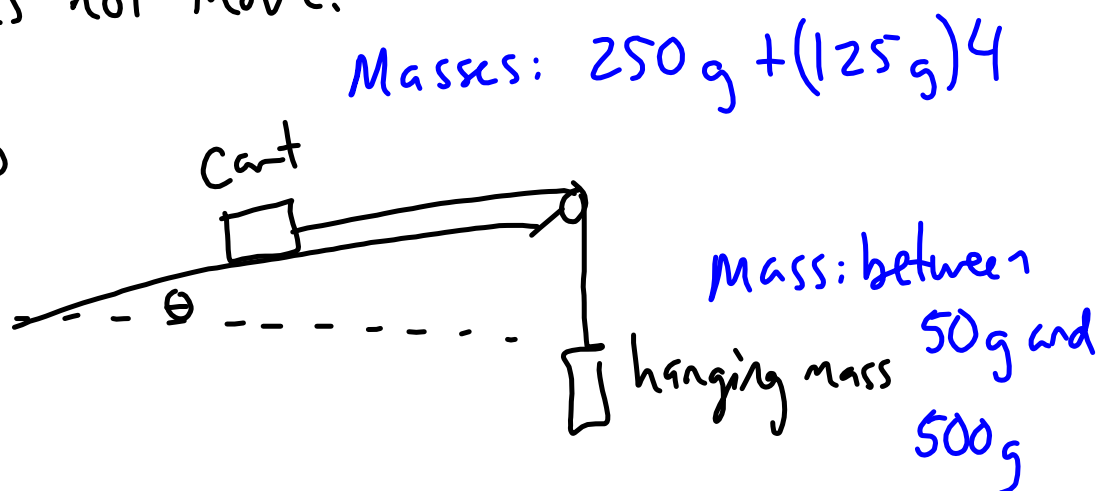


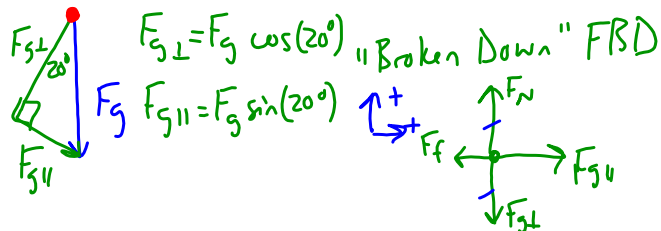
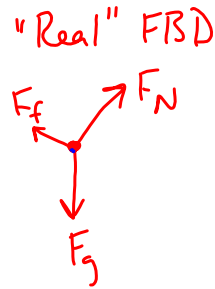
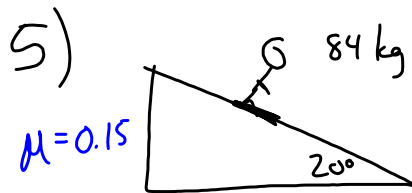
Lab - Cart on Incline

- Determine the angle at which the cart does not move.

- Setup



Worksheet 5



b.

$$\mu = \frac{F_f}{F_N}$$

$$F_f = \mu F_N$$

$$= \mu m a_g \cos(20^\circ)$$

$$= (0.15)(84 \text{ kg})(9.8 \text{ m/s}^2) \cos(20^\circ)$$

$$= 116 \text{ N}$$

$\Sigma \vec{F}_\perp = \emptyset$

$$F_N - F_{g\perp} = \emptyset$$

$$F_N = F_{g\perp}$$

c.

$$\Sigma \vec{F}_\parallel = m \vec{a}_\parallel$$

$$F_{g\parallel} - F_f = m a_\parallel$$

$$a_\parallel = \frac{F_{g\parallel} - F_f}{m}$$

$$= \frac{281 \text{ N} - 116 \text{ N}}{84 \text{ kg}}$$

$$= 1.96 \text{ m/s}^2$$

$$F_{g\parallel} = F_g \sin(20^\circ)$$

$$= m a_g \sin(20^\circ)$$

$$= 281 \text{ N}$$