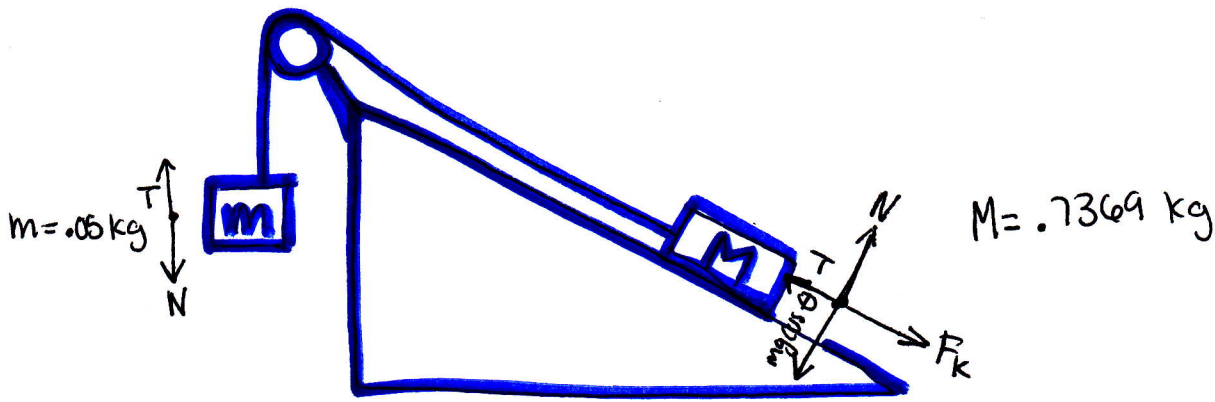


Inclined Plane lab



$$\Sigma F_x = F_k - Mg \sin(\theta) - T = M(-a) \quad \text{Block } M$$

$$\Sigma F_y = N - Mg \cos(\theta) = 0$$

$$N = Mg \cos(\theta)$$

Block m

$$\Sigma F_y = T - mg = m(-a)$$

$$T = mg + m(-a)$$

$$F_k = \mu N$$

$$\frac{F_k}{N} = \mu \leftarrow \text{solve for } \mu$$

Acceleration by Graph

$$s(t) = .1309x^2 + .2635x + .4567$$

$$v(t) = .2618x + .2635$$

$$a(t) = .2618 \text{ m/s}^2 \leftarrow \text{use to calculate } T$$

$$T = mg + m(-a)$$

$$T = .05 \text{ kg}(9.8 \text{ m/s}^2) + .05 \text{ kg}(-.2618 \text{ m/s}^2)$$

$$T = .4769 \text{ N} \leftarrow \text{use to calculate } F_k$$

$$\frac{F_k}{N} = \mu$$

$$\frac{.2583 \text{ N}}{.7369 \text{ kg}(9.8) \cos(20^\circ)} = \mu$$

$$\boxed{.0345 = \mu}$$

$$\Sigma F_x = F_k - Mg \sin(\theta) - T = M(-a)$$

$$F_k - (.7369 \text{ kg}) \sin(20^\circ) - .4769 = .7369 \text{ kg} \cdot -.2618 \text{ m/s}^2$$

$$F_k - .4512 = -.1929$$

$$F_k = .2583 \text{ N} \leftarrow \text{use to calculate } \mu$$