

a) $m = 25 \text{ kg}$
 $g = 9.8 \text{ m/s}^2$
 $\theta = 14^\circ$

Calculate Weight:

$$W = m \cdot g$$

$$= (25 \text{ kg}) (9.8 \text{ m/s}^2)$$

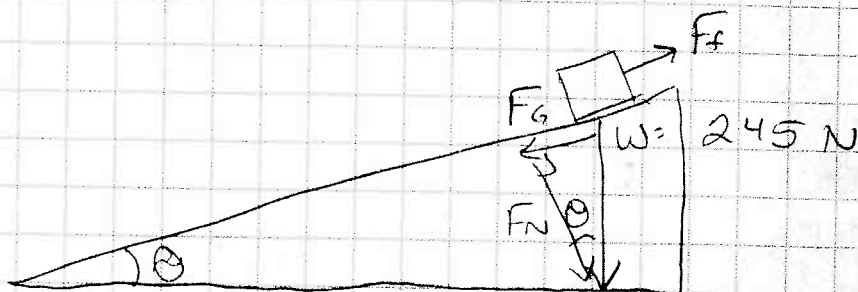
$$W = 245 \text{ N}$$

Calculate F_G :

$$\sin \theta = \frac{F_G}{W}$$

$$\sin 14^\circ = \frac{F_G}{245 \text{ N}}$$

$$F_G = 59.3 \text{ N}$$



b) $\mu = .23$

Calc F_N :

$$\cos \theta = \frac{F_N}{W}$$

$$\cos 14^\circ = \frac{F_N}{245 \text{ N}}$$

$$F_N = 238 \text{ N}$$

Calc F_f :

$$F_f = \mu \cdot F_N$$

$$= (.23)(238 \text{ N})$$

c) $F_G = 59.3 \text{ N}$ (from part a)
 $F_f = 54.7 \text{ N}$ (from part b)

$$F_f = 54.7 \text{ N}$$

$$F_{\text{net}} = F_G - F_f$$

$$= 59.3 \text{ N} - 54.7 \text{ N}$$

$$F_{\text{net}} = 4.6 \text{ N}$$

$$F_{\text{net}} = m \cdot a$$

$$(4.6 \text{ N}) = (25 \text{ kg}) \cdot a$$

$$a = .18 \text{ m/s}^2$$