

$$P = \vec{F} \cdot \vec{v} = (45)(0.765) \cos 35^\circ = 28.2 \text{ watts}$$

Power from 45-N force

$$P = \vec{F} \cdot \vec{v} = (60)(0.765) \cos 40^\circ = 35.2 \text{ watts}$$

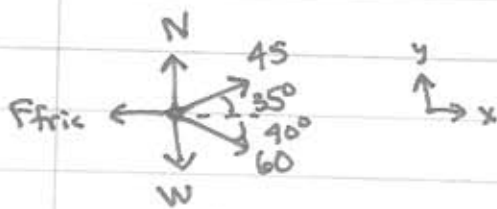
Power from 60-N force

time to move 34 m distance = speed \* time

$$\text{time} = \text{distance} / \text{speed} = 4.44 \text{ s}$$

$$\text{Power} = \frac{\text{Energy}}{\text{Time}} \quad \text{Energy} = \text{Power} * \text{Time} = (28.2 + 35.2) * (4.44)$$

281.5 Joules



$$x: 45 \cos 35^\circ + 60 \cos 40^\circ - F_{\text{fric}} = m a_x = 0$$

$$y: N + 45 \sin 35^\circ - 60 \sin 40^\circ - (55)(9.8) = m a_y = 0$$

$$x: F_{\text{fric}} = 82.82 \quad y: N = 551.8$$

$$F_{\text{fric}} = \mu N \quad \mu = \frac{F_{\text{fric}}}{N} = \frac{82.82}{551.8} = .150$$

check  
 $W = F_{\text{fric}} \cdot (34)$   
 281.6 Joules  
 agrees with  
 above