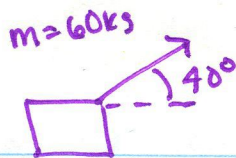


4.

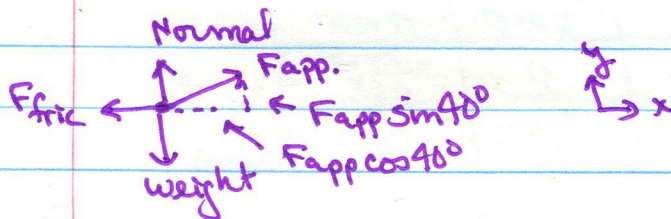


$$v = 1.3 \text{ m/s}$$

$$\mu_s = .450$$

$$\mu_k = .420$$

$$\text{displacement} = 1.80 \text{ m}$$



$$x: F_{\text{app}} \cos 40^\circ - F_{\text{fric}} = 0 \quad \leftarrow \text{constant velocity}$$

$$y: N + F_{\text{app}} \sin 40^\circ - \text{Weight} = 0 \quad \leftarrow \text{no vertical motion}$$

$$y: N = mg - F_{\text{app}} \sin 40^\circ = (60)(9.8) - .6428 F_{\text{app}}$$

$$588 - .6428 F_{\text{app}}$$

$$x: .766 F_{\text{app}} = .420 (588 - .6428 F_{\text{app}}) = 0$$

$\uparrow$   $\uparrow$   $\uparrow$   
 $\cos 40^\circ$   $\mu_k$   $N$

$$.766 F_{\text{app}} - 246.96 + 0.269976 F_{\text{app}} = 0$$

$$1.034 F_{\text{app}} = 246.96$$

$$F_{\text{app}} = 238.38 \text{ Newtons}$$

$$\text{Power} = F \cdot v = (238.38)(1.3) \cos 40^\circ = \underline{237.4 \text{ watts}}$$

$$N = 434.8 \quad F_{\text{fric}} = 182.6 \quad W = F_{\text{fric}} \cdot \text{dis} = (182.6)(1.8)$$

$$\underline{328.7 \text{ Joules}}$$