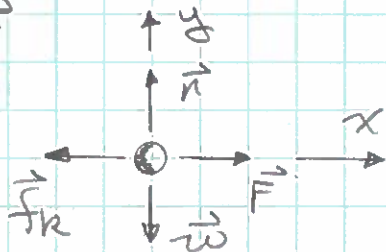


First, find  $F$ :

FBD



$$\sum F_y = n - w = ma_y = 0$$

$$n = w = mg$$

$$\sum F_x = F - f_k = ma_x = 0$$

$$f_k = \mu_k n = \mu_k mg$$

$$\therefore F = f_k = \mu_k mg = \underline{58.8 \text{ N}}$$

Work:

$$\text{Power, } P = \vec{F} \cdot \vec{v} = Fv = \underline{58.8 \text{ Watts.}}$$

$$\text{and } P = \frac{W}{\Delta t} \Rightarrow W = P\Delta t = \underline{176.4 \text{ J.}}$$

Or, you could find the displacement:

$$\Delta x = v\Delta t = 3 \text{ m}$$

$$\text{and } W = \vec{F} \cdot \Delta \vec{r} = F\Delta x = \underline{176.4 \text{ J.}}$$

$$\text{Then } P = \frac{W}{\Delta t} = \underline{58.8 \text{ W.}}$$