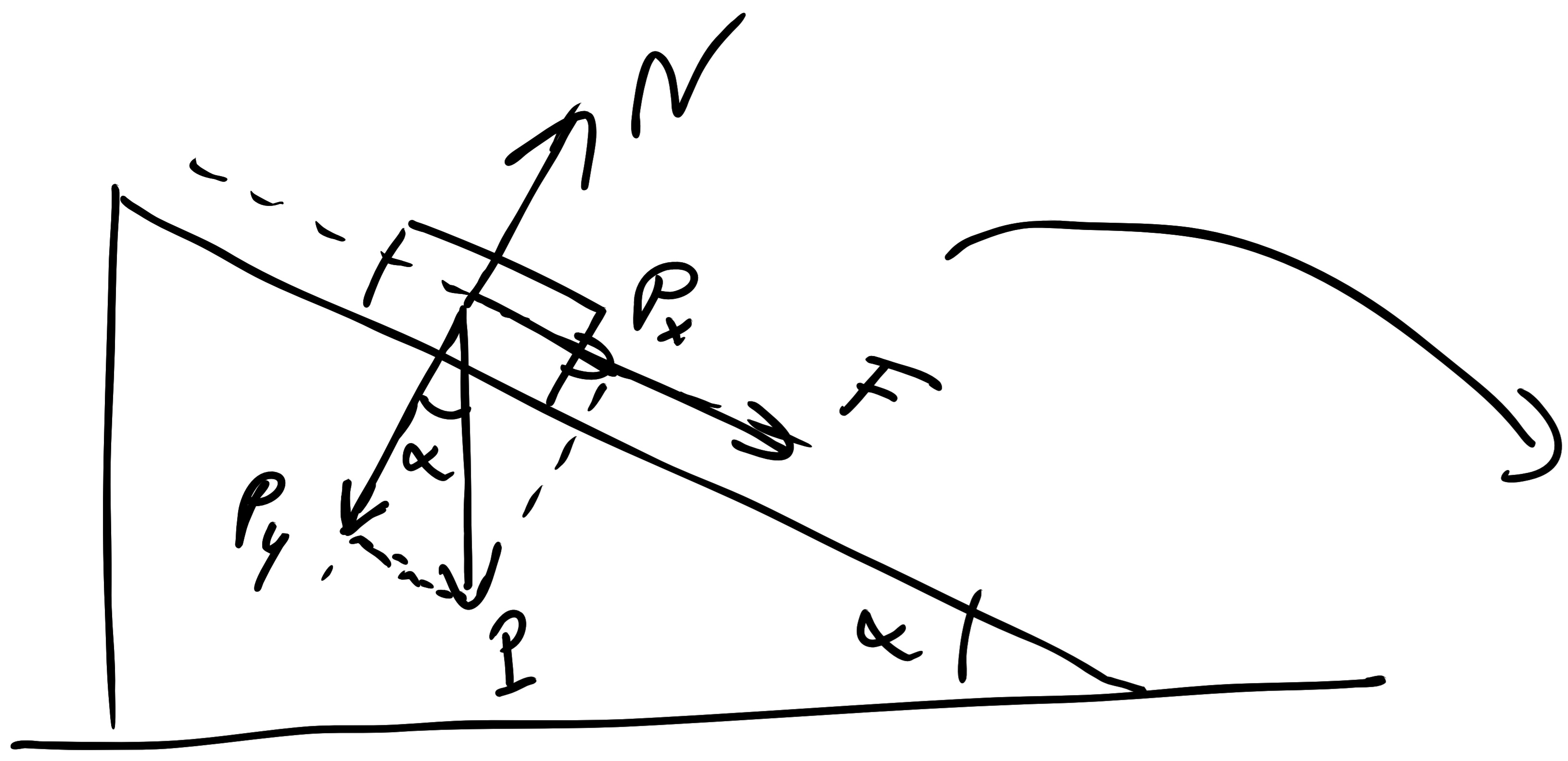


19º) (p. 80)



$$m = 4 \text{ kg}, \quad \alpha = 30^\circ$$

$$\sin \alpha = P_x / P \Rightarrow P_x = P \cdot \sin \alpha$$

$$\cos \alpha = P_y / P \Rightarrow P_y = P \cdot \cos \alpha$$

EJE Y

$$P_y - N = 0 \Rightarrow P_y = N \Rightarrow P \cdot \cos \alpha = N \Rightarrow m \cdot g \cdot \cos \alpha = N$$

$$N = (4 \text{ kg}) \left( 9.8 \frac{\text{m}}{\text{s}^2} \right) \cdot \cos(30^\circ) = 33.9 \text{ N} \approx 34 \text{ N}$$

EJE X

$$F + P_x = m \cdot a \Rightarrow F + [P \cdot \sin \alpha] = m \cdot a \Rightarrow$$

$$F = m \cdot a - [m \cdot g \cdot \sin \alpha] = m [a - g \cdot \sin \alpha]$$

$$F = (4 \text{ kg}) \cdot \left[ 6 \frac{\text{m}}{\text{s}^2} - \left( 9.8 \frac{\text{m}}{\text{s}^2} \right) \cdot (\sin(30^\circ)) \right] = (4 \text{ kg}) \left[ 1.1 \frac{\text{m}}{\text{s}^2} \right]$$

$$F = 4.4 \text{ kg} \cdot \frac{\text{m}}{\text{s}^2}$$

$$\Rightarrow \boxed{F = 4.4 \text{ N}}$$