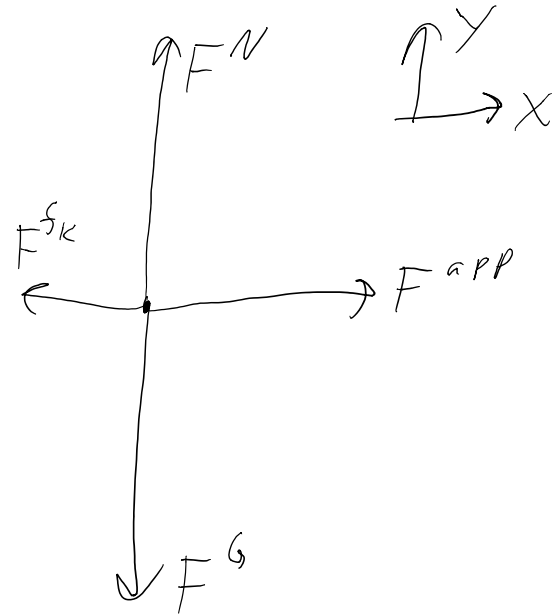
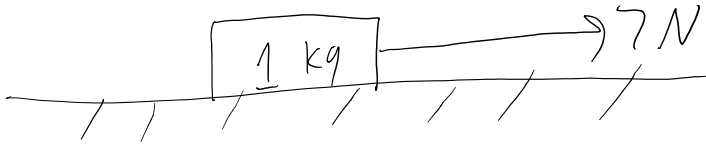


A 1 kg box is being dragged by a 7 N force across a surface where the coefficient of kinetic of 0.3 . What is the box's acceleration?



$$\sum F_x = m a_x$$

$$-F^{f_k} + F^{a_{pp}} = m a_x$$

$$F^{f_k} = \mu_k F^N$$

$$-\mu_s F^N + F^{a_{pp}} = m a_x$$

$$-\mu_s (m g) + F^{a_{pp}} = m a_x$$

$$\frac{-\mu_s m g + F^{a_{pp}}}{m} = a_x$$

$$\frac{-0.3 \cdot 1 \cdot 9.8 + 7}{1} = 4.06 \frac{m}{s^2} = a_x$$

$$\sum F_y = m a_y$$

$$F^N - F^G = m a_y^0$$

$$F^N - m g = 0$$

$$F^N = m g$$