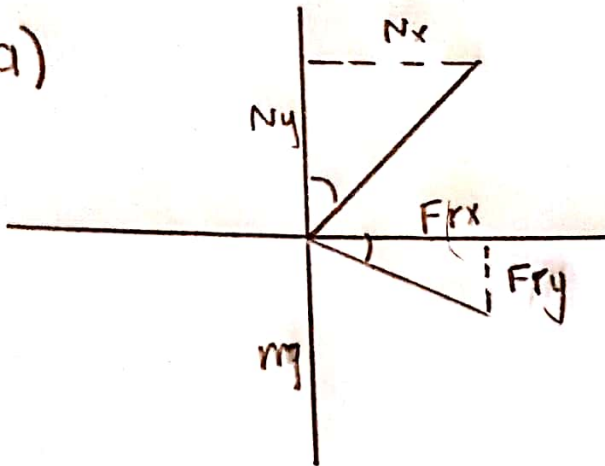


SAMUEL CHAMALÉ .21881

PROBLEMA 1

(a)



$$m = 1000 \text{ kg}$$

$$r = 70 \text{ m}$$

$$v = \frac{10 \text{ km}}{\text{h}} = \frac{25 \text{ m}}{\text{s}}$$

(b)

$$\Sigma F_y = 0$$

$$N_y - F_{iy} - mg = 0$$

$$Fr \sin \theta = N \cos \theta - mg$$

$$Fr (\cos^2 \theta + \sin^2 \theta)$$

$$Fr = m a_c \cos \theta - mg \sin \theta$$

$$\Sigma F_x = m a_c$$

$$N \sin \theta + F_f \cos \theta = m a_c$$

$$Fr \cos \theta = m a_c - N \sin \theta$$

$$Fr = 1000 \text{ kg} \left(\frac{(25 \text{ m/s})^2}{70} \cos 12^\circ - 9.8 \frac{\text{m}}{\text{s}^2} \sin 12^\circ \right)$$

$$Fr = 6696 \text{ N}$$

PROBLEMA 2

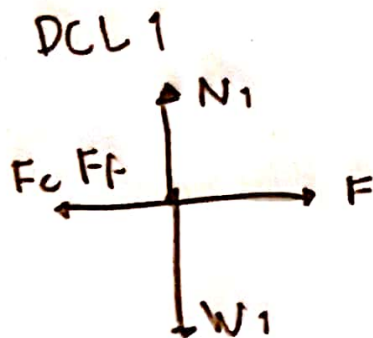
$$m_1 = 75 \text{ kg}$$

$$m_2 = 110 \text{ kg}$$

$$v_0 = 0 \text{ m/s}$$

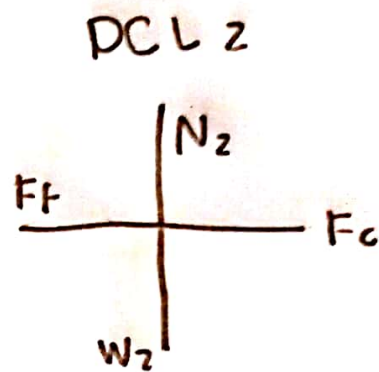
$$F = 620$$

$$\mu = 0.15$$



$$\sum F_y = 0 \quad N = m_1 g$$

$$\sum F_x = F - F_c - F_f = m_1 \cdot a$$



$$F_c - F_{f2} = m_2 \cdot a$$

$$F - F_1 - F_{f2} = a(m_1)$$

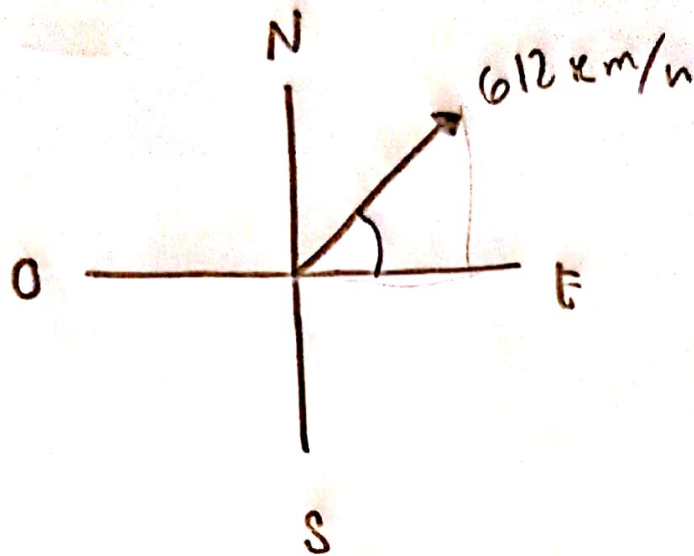
$$(a) \quad a = 1.88 \text{ m/s}^2$$

$$(b) \quad \sum x_2 = m_2 a$$

$$F_c - F_{f2} = m_2 a$$

$$F_c = m_2 a + F_{f2} = 368 \text{ N}$$

PROBLEMA 3



$$N_{ay} = 612 \sin 32^\circ = 324.31 \text{ km/h}$$

$$\Sigma V_y = 324.31 - 93.5 = 230.8 \text{ km/h}$$

$$N_{ax} = 612 \cos 32^\circ = 519 \text{ km}$$

$$V = \sqrt{519^2 + 230.8^2} = 568 \text{ km/h}$$