



Par la deuxième loi de Newton

$$\vec{F}_1 = m_1 \vec{a}_1$$

En y: $N_1 - m_1 g = 0 \Rightarrow a_y = 0$

$$N_1 = m_1 g$$

En x: $-F_{1\leftarrow 2} + f = m_1 a_{1x}$

$$-F_{1\leftarrow 2} + \mu_c N_1 = m_1 a_{1x}$$

$$-F_{1\leftarrow 2} + \mu_c m_1 g = m_1 a_{1x} \quad (1)$$

Par la loi de Coulomb

$$\vec{F}_{1\leftarrow 2} = \frac{k q_1 q_2}{r^2} \hat{u}_{2\rightarrow 1}$$

Donc, $\hat{u}_{2\rightarrow 1} = -\hat{i}$. $F_{1\leftarrow 2} = \frac{k |q_1 q_2|}{r^2} \hat{i}$

De (1): $\frac{-k |q_1 q_2|}{r^2} + \mu_c m_1 g = m_1 a_{1x}$

$$a_{1x} = \frac{-k |q_1 q_2|}{m_1 r^2} + \mu_c g$$

Ainsi $\mu_c = 0,6$:

$$\hat{a}_1 = -10,9 \text{ m/s}^2 \hat{i}$$