

$m = 20$ pag 154

$$m = 0,04 \text{ kg}$$

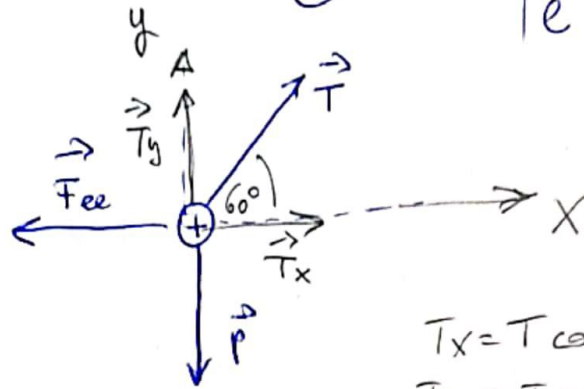
$$q = +3,5 \mu\text{C}$$

$$l = ?$$

$$T = ?$$

EQUILIBRIO

$$\vec{F}_{ee} + \vec{P} + \vec{T} = 0$$



$$T_x = T \cos 60$$
$$T_y = T \sin 60$$

$$\begin{cases} \text{equilibrio on } x & k \frac{q^2}{l^2} = T \cos 60^\circ \\ \text{equilibrio on } y & mg = T \sin 60^\circ \end{cases}$$

$$\hookrightarrow T = \frac{mg}{\sin 60^\circ}$$

sostituisco nella prima equazione

$$k \frac{q^2}{l^2} = mg \frac{\cos 60^\circ}{\sin 60^\circ}$$

$$l^2 = \frac{kq^2}{mg} \cdot \tan 60^\circ \rightarrow l = \sqrt{\frac{kq^2 \tan 60^\circ}{mg}} = \sqrt{\frac{8,9 \cdot 10^9 \frac{\text{N}}{\text{m}} \cdot (3,5 \cdot 10^{-6} \text{C})^2 \tan 60^\circ}{0,04 \text{ kg} \cdot 9,8 \frac{\text{m}}{\text{s}^2}}}$$

$$l = 0,697 \text{ m}$$

$$T = \frac{mg}{\sin 60^\circ} = \frac{0,04 \text{ kg} \cdot 9,8 \frac{\text{m}}{\text{s}^2}}{\sin 60^\circ} = 0,453 \text{ N}$$