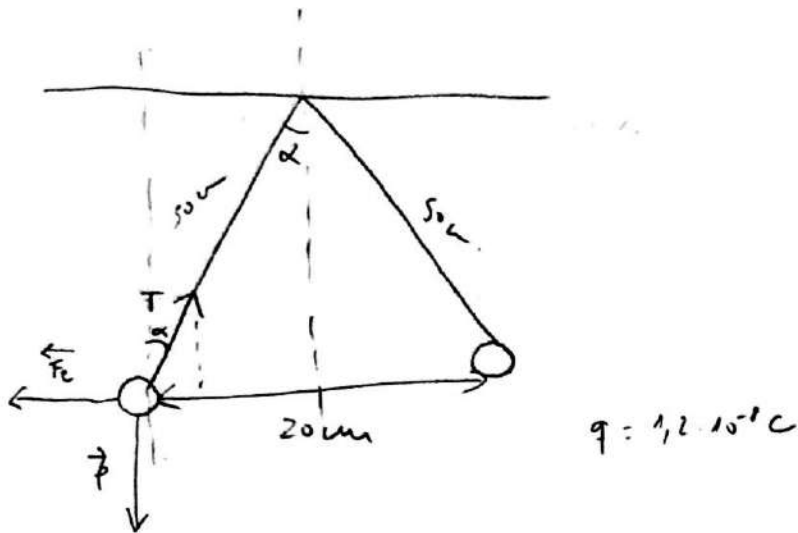


6

a)



$$\sin^{-1} \frac{10}{50} = \frac{1}{5} \Rightarrow \alpha = 11,5^\circ$$

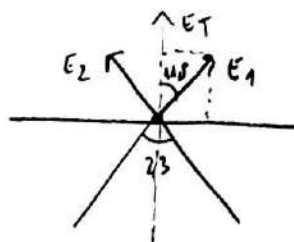
$$|\vec{T}_x| = |\vec{F}_e| = k \frac{q^2}{d^2} = 9 \cdot 10^9 \cdot \frac{(1,2 \cdot 10^{-8})^2}{(20 \cdot 10^{-2})^2} = 3,24 \cdot 10^{-5} \text{ N}$$

$$|\vec{T}_y| = |\vec{P}| = m \cdot g \rightarrow \text{No, pt calcula per angulo}$$

$$|\vec{T}_x| = |\vec{T}| \cdot \sin \alpha$$

$$|\vec{T}| = 3,24 \cdot 10^{-5} / \frac{1}{5} \Rightarrow |\vec{T}| = 1,64 \cdot 10^{-4} \text{ N}$$

b)



$$\vec{E}_1 = k \cdot \frac{q}{r^2}$$

$$\vec{E}_2 = k \cdot \frac{q}{r^2}$$

$$\vec{E}_T = 2 \cdot k \cdot \frac{q}{r^2} \cdot \cos 11,5^\circ$$

$$\vec{E}_T = 2 \cdot 9 \cdot 10^9 \cdot \frac{1,2 \cdot 10^{-8}}{(50 \cdot 10^{-2})^2} \cdot \cos 11,5^\circ$$

$$|\vec{E}_T| = 846,7 \text{ V}$$