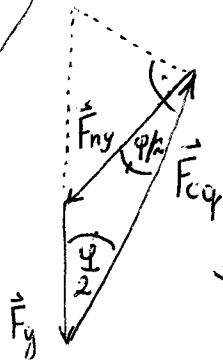
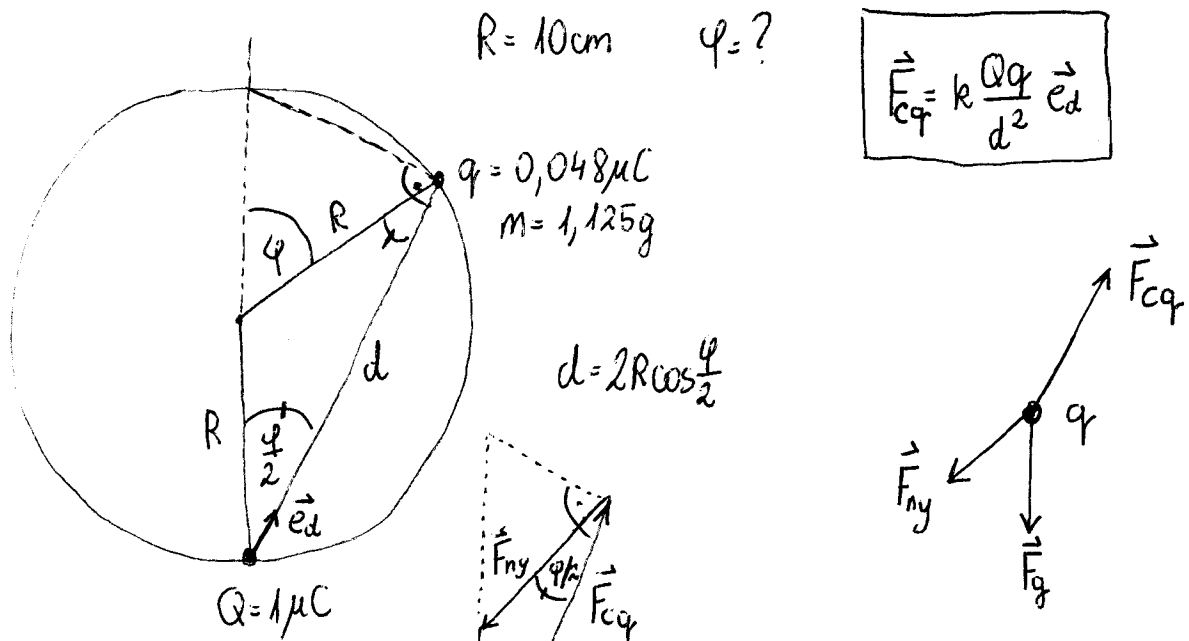


1.)



$$\Rightarrow F_{Ny} = F_g = mg$$

$$\begin{cases} F_{Cq} = 2mg \cos \frac{\varphi}{2} \\ F_{Cq} = k \frac{Qq}{d^2} \end{cases}$$

$$2mg \cos \frac{\varphi}{2} = k \frac{Qq}{d^2}$$

$$2mg \cos \frac{\varphi}{2} = \frac{kQq}{4R^2 \cos^2 \frac{\varphi}{2}}$$

$$\cos^3 \frac{\varphi}{2} = \frac{kQq}{8R^2 mg} \rightarrow \varphi = \dots$$