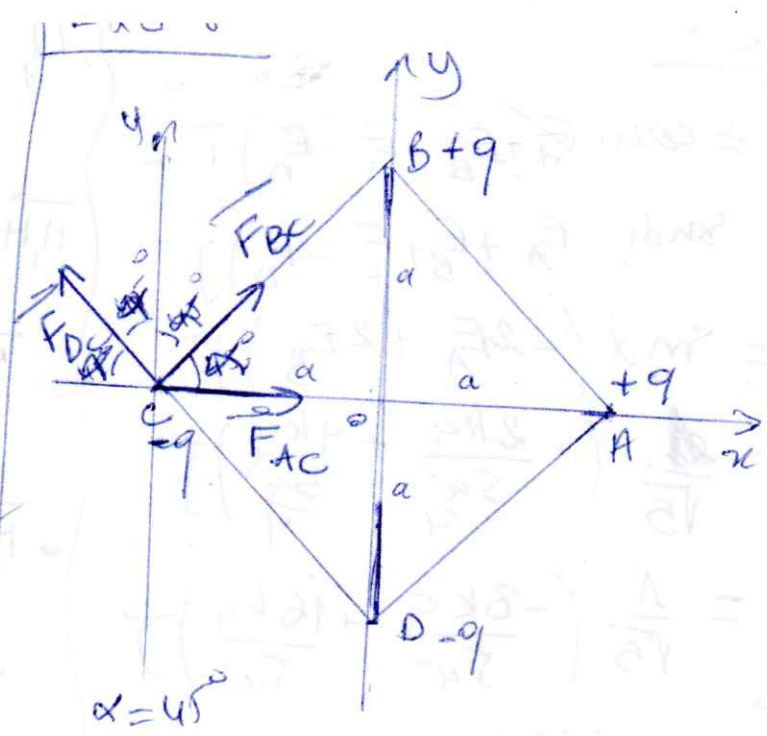
10- force F qui s'exerce sur la charge q_3 placée en H

$$\vec{F} = q_3 \vec{E}_H$$

$$= (0{,}45 \times 10^{-6})(-74{,}92\vec{i} + 48{,}02\vec{j} + 184{,}88\vec{k})$$



1) Vecteur force électrostatique au point C :

$$\vec{F}_C = \vec{F}_{AC} + \vec{F}_{BC} + \vec{F}_{DC}$$

$$\vec{F}_{AC} = F_{AC}\,\vec{i}$$

$$\vec{F}_{BC} = F_{BC}(\cos\alpha\,\vec{i} + \sin\alpha\,\vec{j})$$

$$\vec{F}_{DC} = F_{DC}(-\cos\alpha\,\vec{i} + \sin\alpha\,\vec{j})$$

$$F_{AC} = \frac{kq^2}{(2a)^2} = \frac{kq^2}{4a^2}$$

$$F_{BC} = \frac{kq^2}{(\sqrt{2}a)^2} = \frac{kq^2}{2a^2}$$

$$F_{DC} = \frac{kq^2}{(\sqrt{2}a)^2} = \frac{kq^2}{2a^2}$$

$$\alpha = 45° \Rightarrow \cos\alpha = \sin\alpha = \frac{\sqrt{2}}{2}$$

$$\Rightarrow \vec{F}_C = (F_{AC} + F_{BC}\cos\alpha - F_{DC}\cos\alpha)\vec{i} + \sin\alpha(F_{BC} + F_{DC})\vec{j}$$

$$=$$