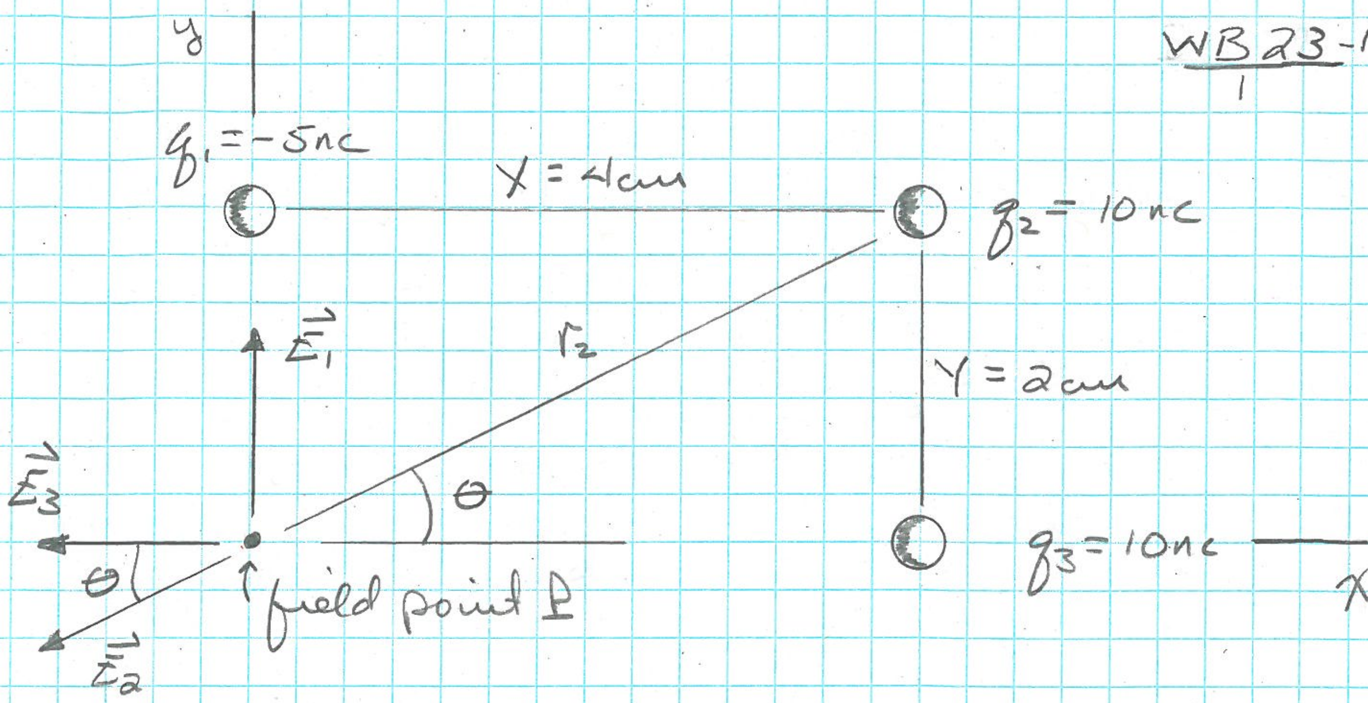


$\vec{E}_{TOT} = \vec{E}_1 + \vec{E}_2 + \vec{E}_3$

Use $E_i = \frac{K|q_i|}{r_i^2}$ & assign direction from figure.

for q_1: $r_1 = Y$

$$|\vec{E}_1| = \frac{K|q_1|}{Y^2} = 1.124\times10^5 \text{ N/c}$$

So, $\underline{\vec{E}_1 = 1.124\times10^5\,\hat{j} \text{ N/c}}$

for q_3: $r_3 = X$

$$|\vec{E}_3| = \frac{K|q_3|}{X^2} = 5.619\times10^4 \text{ N/c}$$

So, $\underline{\vec{E}_3 = -5.619\times10^4\,\hat{i} \text{ N/c}}$

for q_2: $r_2^2 = X^2 + Y^2$

$$|\vec{E}_2| = \frac{K q_2}{X^2+Y^2} = 4.495\times10^4 \text{ N/c}$$

Now, from figure:

$$\vec{E}_2 = -|\vec{E}_2|\cos\theta\,\hat{\imath} - |\vec{E}_2|\sin\theta\,\hat{\jmath}$$

(same as $\hat{r} = -\cos\theta\,\hat{\imath} - \sin\theta\,\hat{\jmath}$)

where $\theta = \tan\left(\frac{Y}{X}\right) = 26.56°$

So:

$$\underline{\vec{E}_2 = -4.021\times10^4\,\hat{\imath} - 2.01\times10^4\,\hat{\jmath}\ \text{N/C}}$$

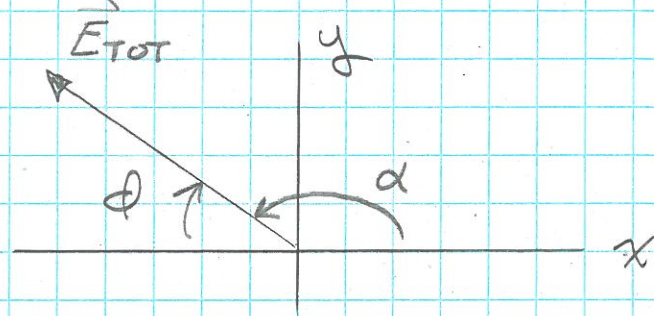
Now,

$$\vec{E}_{TOT} = \vec{E}_1 + \vec{E}_2 + \vec{E}_3$$

$$\boxed{\vec{E}_{TOT} = -9.64\times10^4\,\hat{\imath} + 9.23\times10^4\,\hat{\jmath}\ \text{N/C}}$$

Also, $|\vec{E}_{TOT}| = \sqrt{E_x^2 + E_y^2} = \underline{1.335\times10^5\ \text{N/C}}$

and,



$$\phi = \tan^{-1}\left(\frac{|E_y|}{|E_x|}\right) = 43.76°$$

$\therefore$ $\underline{\alpha = 180° - \phi = 136.2°}$ from $+x$ axis.