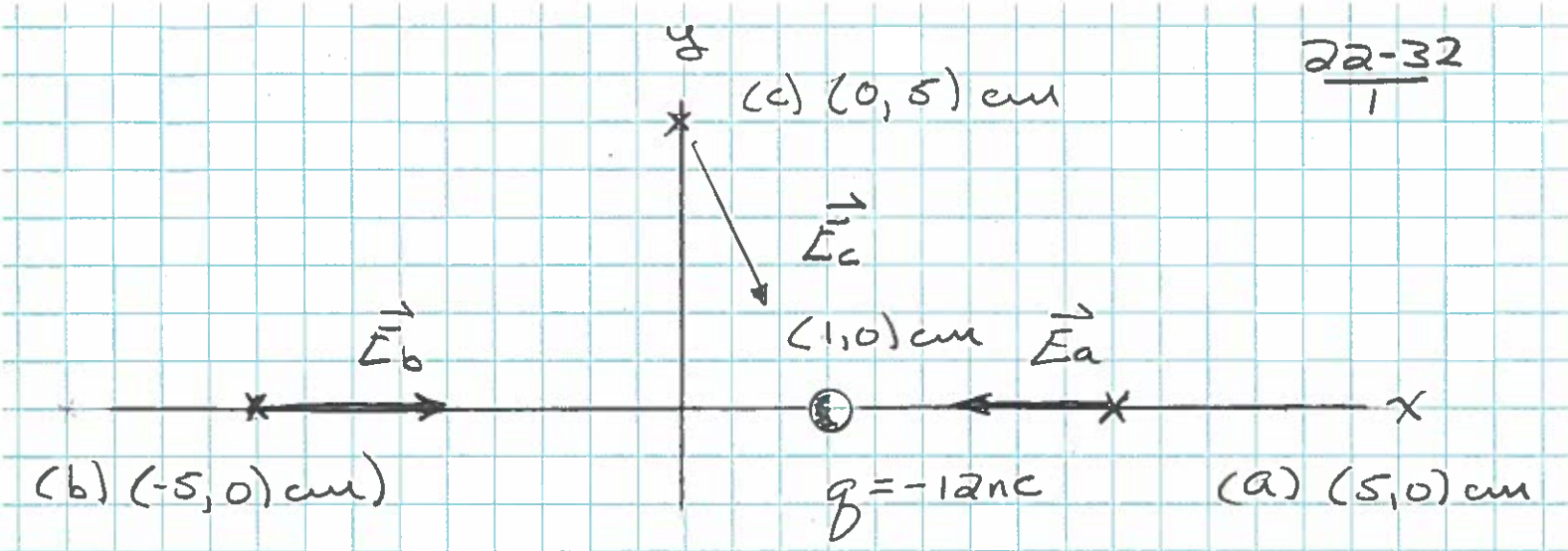


Since $q<0$, the field everywhere points toward q.

For point a: $|\vec{E}_a| = \frac{K|q|}{r_a^2}$ $\quad r_a = 5-1 = 4\,cm$

$|\vec{E}_a| = 6.742\times10^4\ N/C$

From sketch: $\vec{E}_a = -6.742\times10^4\,\hat{i}\ N/C$

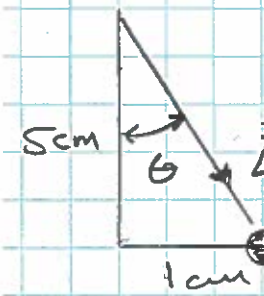
For point b: $|\vec{E}_b| = \frac{K|q|}{r_b^2}$ $\quad r_b = 5+1 = 6\,cm$

$|\vec{E}_b| = 3.00\times10^4\ N/C$

From sketch: $\vec{E}_b = 3.00\times10^4\,\hat{i}\ N/C$

For point c:

$|\vec{E}_c| = \frac{K|q|}{r_c^2} = 4.149\times10^4\ N/C$



$\theta = \tan^{-1}\left(\frac{1}{5}\right) = 11.31°$

From sketch: $\vec{E}_c = |\vec{E}_c|\sin\theta\,\hat{i} - |\vec{E}_c|\cos\theta\,\hat{j}$

$\therefore\ \vec{E}_c = 8.136\times10^3\,\hat{i} - 4.068\times10^4\,\hat{j}\ \frac{N}{C}$

$r_c = \sqrt{5cm^2 + 1cm^2}$

$= 5.099\,cm$