Electric Field of Point Charges in Plane (1)

Determine magnitude of $\vec{E}_1$ and $\vec{E}_2$
and identify directions in plane:

$$E_1 = \frac{k|q_1|}{(3\mathrm{m})^2} = 7.99\mathrm{N/C},\ E_2 = \frac{k|q_2|}{(5\mathrm{m})^2} = 4.32\mathrm{N/C}.$$

Determine x- and y-components of $\vec{E}_1$ and $\vec{E}_2$
and of the resultant field $\vec{E}$:

$$E_1^x = 0, \quad E_1^y = 7.99\mathrm{N/C};$$
$$E_2^x = -3.46\mathrm{N/C}, \quad E_2^y = 2.59\mathrm{N/C};$$
$$E_x = -3.46\mathrm{N/C}, \quad E_y = 10.6\mathrm{N/C}.$$

Determine magnitude and direction of $\vec{E}$:

$$E = \sqrt{E_x^2 + E_y^2} = 11.2\mathrm{N/C}, \quad \theta = \arctan\left(\frac{E_y}{E_x}\right) = 108^\circ.$$