Electric Field of Point Charges in Plane (5)

Find magnitude and direction of the resultant electric field at point P.

- $E_1 = \dfrac{k|q_1|}{8\text{m}^2} = 3.38\,\text{N/C}.$
- $E_2 = \dfrac{k|q_2|}{4\text{m}^2} = 6.75\,\text{N/C}.$
- $E_3 = \dfrac{k|q_3|}{8\text{m}^2} = 3.38\,\text{N/C}.$
- $E_x = E_1\cos 45^\circ + E_3\cos 45^\circ = 4.78\,\text{N/C}.$
- $E_y = E_2 = 6.75\,\text{N/C}.$
- $E = \sqrt{E_x^2 + E_y^2} = 8.27\,\text{N/C}.$
- $\tan\theta = \dfrac{E_y}{E_x} = 1.41.$
- $\theta = \arctan 1.41 = 54.7^\circ.$