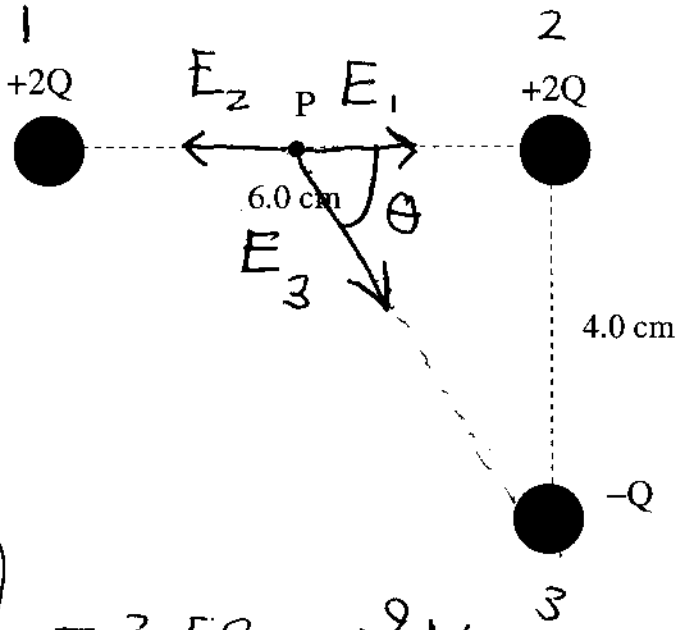
Quiz 2 – PH242 **Name**_____ ☐ **Pledged**

There are three charges as depicted in the figure. What is the electric field at point P (which is exactly between the two charges) if $Q = 1 \times 10^{-3}C = 1mC$? Please show all work including drawing the final $\vec{E}$ vector.

Equations

$|\vec{E}| = \frac{k_0 q}{r^2}$ for a point charge $\quad k_0 = 8.987 \times 10^9 \frac{Nm^2}{C^2}$



Top 2 charge's effect cancels

$E_3 = E_{TOT}$

$$|\vec{E}| = \frac{k_0 (-1 \times 10^{-3} C)}{(.05m)^2} = 3.59 \times 10^9 \frac{N}{C}$$

angle is $\theta = \tan^{-1}\left(\frac{4}{3}\right) = 53^\circ$