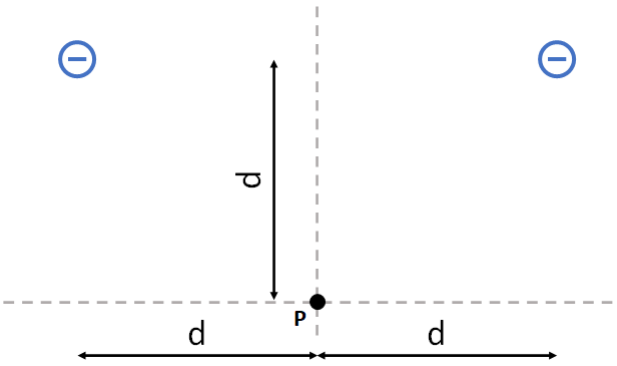
Physics 203
Quizbit | Electric Fields

Part A: Work individually to produce a handwritten solution to **Part A (question 1)** of this Quizbit. Submit an image of your solution to Canvas. The quality of your solution and communication is far more important than the final answer!

1) Two electrons are fixed in place near a point P as shown. Assume a standard coordinate system while solving this problem. The distance d is 1.00 meters. Find the electric field ***vector*** at point P.



Hints:

$\vec{E}_{pc} = k \frac{q}{|\Delta\vec{r}|^2}\Delta\hat{r}$

$k = 8.99 \times 10^9 \, N\frac{m^2}{C^2}$

$m_e = 9.11 \times 10^{-31} \, kg$

$m_p = 1.67 \times 10^{-27} \, kg$

$e = 1.602 \times 10^{-19} \, C$

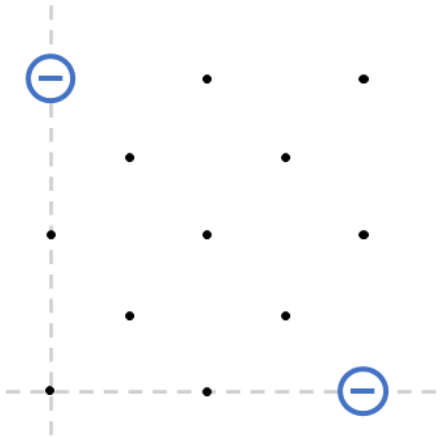
$c^2 = a^2 + b^2$

Part B: As a group, assign roles to each member. One person should be the writer, one should be the recorder in charge of submitting the group solution to Gradescope (or Canvas), and if you have a third member, they should be the advice giver. Write each group member's name on the solution! Make sure to rotate roles so that each person has a chance to be the writer. **Work together to produce a written solution to Part A, then additionally answer Part B (questions 2 and 3)**. Submit an image of your work to Gradescope or Canvas.

2) A proton is placed at rest at point P from problem 1. It is then allowed to move. Find its initial acceleration.

3) For the following charge distributions, draw the electric field vector at each black dot. Make sure to scale each vector relative to neighboring vectors. Each charge has identical magnitudes. The two charge distributions are far from each other.

(a)



(b)