

NAME \_\_\_\_\_  
PERIOD \_\_\_\_\_

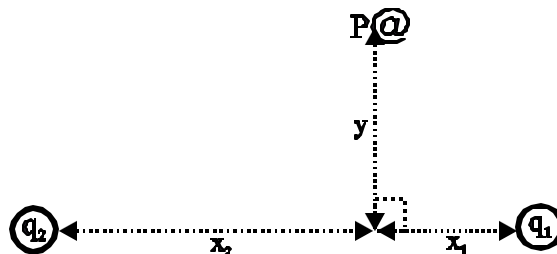
PHYSICS QUIZ #35D  
ELECTRIC FIELDS - DISCRETE

1. A Nitrogen nucleus, which has a mass of  $2.24 \times 10^{-26}$  kg., is sitting in a uniform electric field where it feels a force of 0.0870 N. What is the magnitude of the electric field responsible for this force ? [3 pts]

$$E = \frac{k \cdot q}{r^2}$$
$$k = 9.0 \cdot 10^9 \frac{Nm^2}{C^2}$$
$$q_{e^-} = -1.6 \cdot 10^{-19} C$$

Two charged particles,  $q_1 = -7.0 \mu C$  and  $q_2 = -12.0 \mu C$ , are located as shown to the right where  $x_1 = 3.5$  cm.,  $x_2 = 6.0$  cm., and  $y = 5.0$  cm.

2. On the diagram to the right **sketch** the electric field in the vicinity of these two charges. [3 pts]



3. What will be the **direction** [3 pts] and the **magnitude** [3 pts] of the electric field at point P in the diagram?

4. What would be the magnitude of the electrostatic force acting on a doubly ionized Nitrogen ion,  $q = 3.2 \times 10^{-19} C$ , when placed at point P? [3 pts]