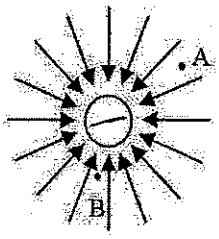
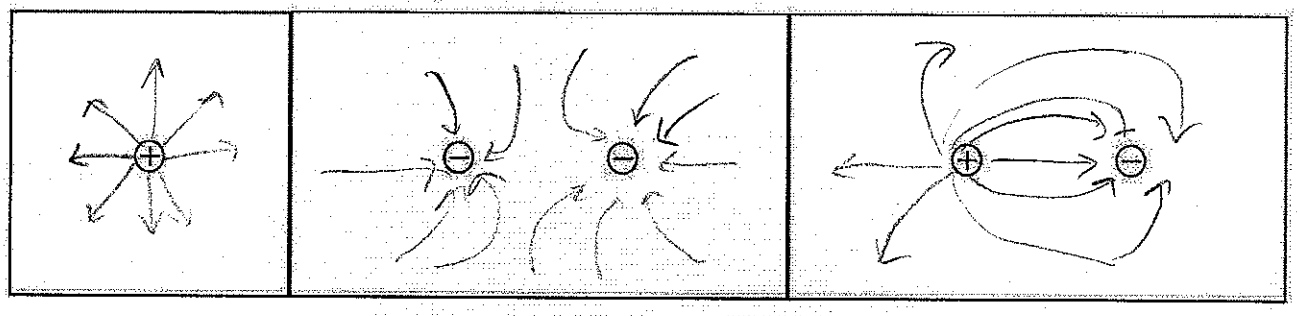


1. A. Is this a + or − charge?
   B. Why? E is toward
   C. Is the field stronger at A or B?
   D. Why? lines are closer
   E. How would the picture change if the charge was decreased?
   Less lines

2. How much force does a 4 C charge feel when it is in a 2.5 N/C electric field?
   2.5N / 1C = 4C / 1 (10N)

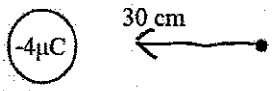
3. A 3 C charge feels 15 N of force. What is the electric field strength at its current position?
   $E = \frac{N}{C} = \frac{15N}{3C} = 5\ N/C$

4. Draw the electric fields for the following situations.

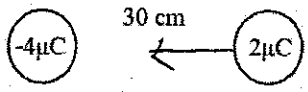


5. Calculate the electric field 5 cm away from a 8 μC charge.
   $E = k_c \frac{q}{r^2} = 9\times10^9 \frac{8\mu C}{(5cm)^2} = \frac{8\times10^{-6}C}{(.05m)^2}$
   $2.88\times10^7 \frac{N}{C}$

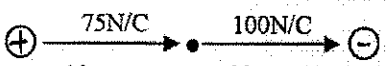
6. Calculate the electric field 4 mm from a 10 μC charge.
   $E = k\frac{q}{r^2} = \frac{10\times10^{-6}C}{(.004)^2}$
   $5.625\times10^9 \frac{N}{C}$



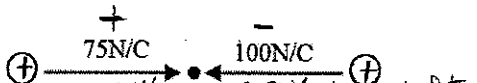
7. A. Calculate the magnitude of the electric field at a point 30 cm away from a −4μC charge.
   $E = k\frac{q}{r^2} = 9\times10^9 \cdot \frac{-4\times10^{-6}C}{(.3m)^2} = -4\times10^5\ N/C$ Left
   B. Draw the direction of the field at the point.
   C. What is the magnitude of the electric field if a 2μC charge is put at that same point?
   Same, Efield is pos, you don't know what's out there



   D. Calculate the force between them.
   $-4\times10^5\ N/C \cdot \frac{2\times10^{-6}C}{1} = -.8$

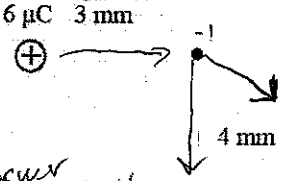


8. Two charges create the electric fields shown above.
   A. What are the signs of the two charges?
   B. If they are equal distance from the point, how can the electric field be greater by one of the charges?
   more E (electric field)
   C. Calculate the net electric field at the point (*magnitude and direction*). parallel vectors
   add together 75N/C + 100N/C = 175N/C
   D. One of the charges is changed. Determine the signs of the charges and the net field at the midpoint.



75N/C − 100N/C =

9. A. Calculate E at the point due to each charge
   B. Then calculate and draw the net electric field.
   $E = k\frac{q}{r^2} = 9\times10^9 \frac{6\times10^{-6}C}{(.003)^2} = 6\times10^9\ N/C$



Key answer $6.1\times10^9\ N/C$
$9\times10^9 \frac{2\times10^{-6}C}{(.004m)^2}$
$1.125\times10^9\ N/C$
Enet = my answer doesn't line with key
Let's talk in class
$\theta = \tan^{-1}\frac{-1.125}{+6} = 10.6°$

   C. If an electron was placed at the point, which way would it move? Opposite direction