

Estat #2 p568 MC 1

(2)

C 8, 10, 12

p569 Problems 2, 4, 5, 6

Online - Visualize E field

p568 - Multiple Choice

(9)

1) What does the electric field depend on?

(1)

- magnitude & sign of source charge
(not test charge)

- Concept

8) Very small + charge at a spot →
NO F on it. Find E?

A) $F = Eq$ no F no E 0 N/C

(1)

B) Choose correct charge distribution
that would produce zero E

- Two negative - point at center/middle
- Two positive - point at center/middle

12) What are E field lines?

(1)

E field show direction of F
on test charge

p 569 - Problems

2) Uranium nucleus
92 protons

$r = 0.58 \times 10^{-12} \text{ m}$

a) $E = \frac{kq}{r^2}$

$$= \frac{8.99 \times 10^9 \frac{\text{Nm}^2}{\text{C}^2} (92)(1.60 \times 10^{-19} \text{ C})}{(0.58 \times 10^{-12} \text{ m})^2}$$

$= 3.93 \times 10^{17} \text{ N/C}$

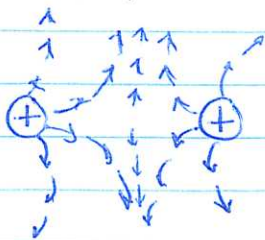
b) F on electron

$$F = Eq = (3.93 \times 10^{17} \text{ N/C})(1.60 \times 10^{-19} \text{ C})$$

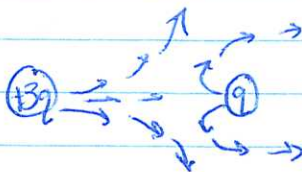
$$= 0.063 \text{ N}$$

4) Draw E field (uses ~~q~~ multi-lines)

A)



B)



C)



(1)

(1)

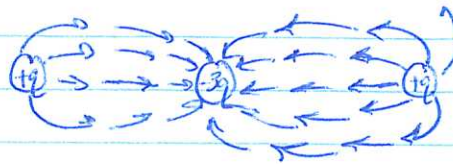
5) Draw E field (uses multi-lines)

A)



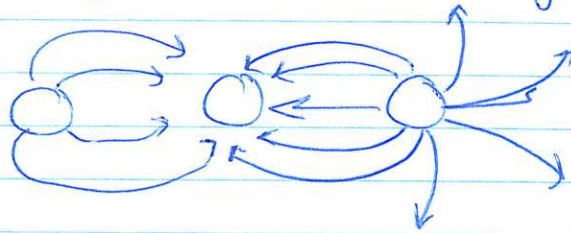
(1)

B)



bend from far edges to bigger q

6) a) E field given, what charges are there



(1)

+

-

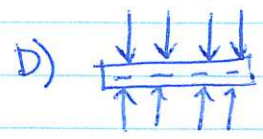
+

b) essay What else can you determine? 2 examples

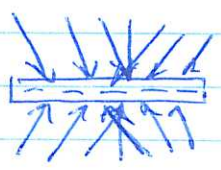
- Charge on left is $\frac{1}{2}$ middle b/c half the field lines
- middle + right same mag b/c same #
- Possibility is $+q -2q +2q$

-Online - Visualize E field

A) Which pic show field from uniform negative charge sheet



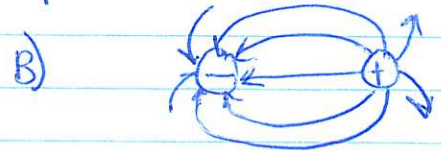
B) What is wrong w/ panel B?



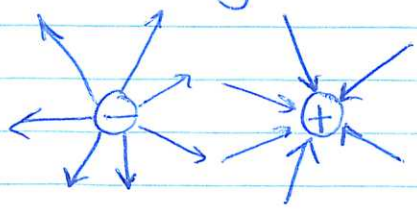
- Field lines can't cross
- Lines should be //

(2)

C) Correct pic of dipole

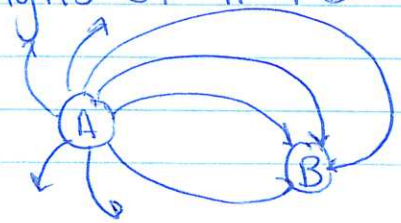


D) What is wrong w/ panel D?



- Field lines should be smooth curves

E) Signs of A + B



A = 14 lines
B = 6 lines

$A = +7q$ $B = -3q$

- field lines should end on negative or infinity