

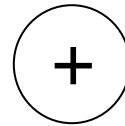
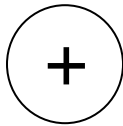
Physics 10
Electric Field WS

1. An electric field of 2.0×10^4 N/C is directed along the positive x-axis. What is the electric force on an electron in this field?
2. A proton (mass = 1.67×10^{-27} , charge = +e) accelerates to the right in an electric field at 5.5×10^6 m/s². What is the strength and direction of the electric field?
3. A 4.0 g piece of Styrofoam that has acquired a charge floats perfectly suspended in an electric field of strength 3200 N/C directed downward.
 - a. Draw a picture with all the forces for this scenario.
 - b. What is the net force on the Styrofoam?
 - c. Determine the charge (magnitude and sign) of the Styrofoam.

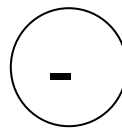
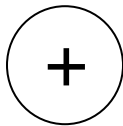
Draw the electric field lines corresponding to the following combinations of charges. Use 4-8 lines to represent one unit of charge.

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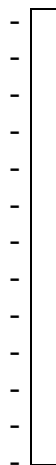
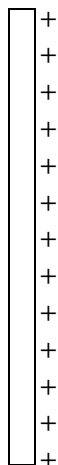
4.



5.



6.



7.

$$2-$$

$$-$$

8.

$$3 +$$

$$-$$

9.

$$+$$

$$-$$

$$+$$