Potential Surfaces Lab Report

Physics

The following questions require the use of the Charges and Fields applet from Phet.

Part A *– opposite charges*

Place a +1 nC charge below the top of the screen. Place a -1 nC charge above the bottom of the screen. Use the ruler tool to measure the distance between the two charges. Calculate the answers to the following questions, then test your responses using the applet.

1. What is the E-field at a point exactly halfway between the two charges?
2. What is the electrical potential (relative to the two charges) of that same point halfway between the two charges?

Part B *– same charges*

Replace the -1 nC charge at the bottom of the screen with a +1 nC charge. Again, calculate the answers to these questions and test your responses with the applet.

3. What is the E-field at a point exactly halfway between the two charges?
4. What is the electrical potential (relative to the two charges) of that same point halfway between the two charges?

Part C *- analysis*

5. What does your answer to number 2 mean? Would a particle placed at that point accelerate in one direction or another?
6. What does your answer to number 3 mean? Would a particle placed at that point accelerate in one direction or another?
7. Explain why your answers to number 3 and number 4 seem strange but are still consistent with the concepts we've discussed in class.