

Name: \_\_\_\_\_ Section: \_\_\_\_\_ Score: \_\_\_\_\_/20

1. A  $-11\ \mu\text{C}$  point charge **A** is fixed in the space.

(1) You bring a positive charge **B** of  $8\ \mu\text{C}$  from infinity to a point which is 7 cm away from charge **A**. What is the work you have to do? [5]

(2) Now, charge **B** is gently released and moves to a point 4 cm away from the fixed charge **A**. What is its speed, if its mass is 1.5 g? [5]

2. There are four charges on the plane. The equipotential curves are described in the following figure.

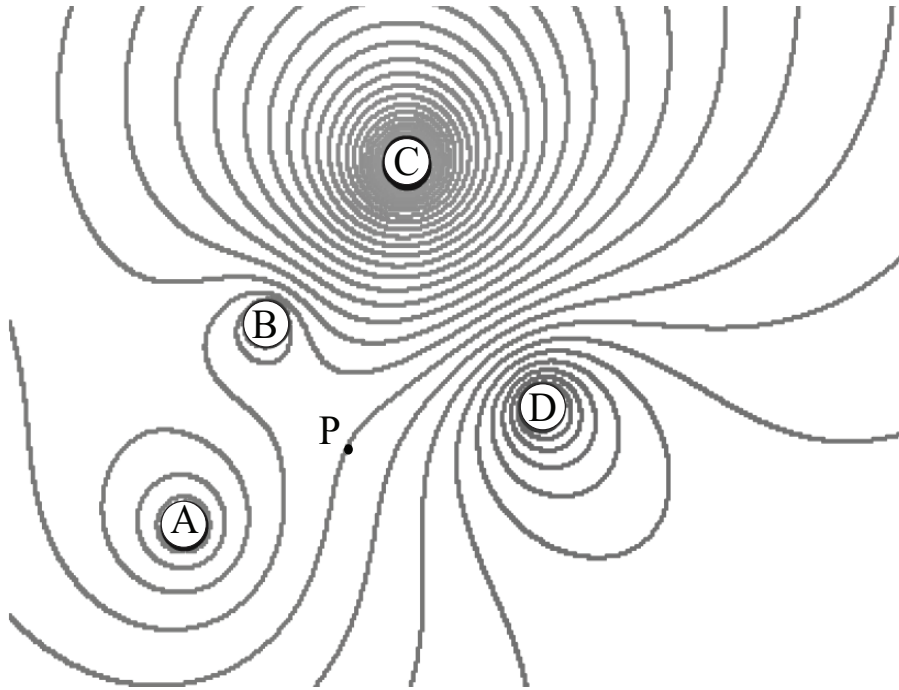


Figure 1:

(1) Suppose A is negatively charged. State the signs of all the remaining charges B - D.

(2) Which charge has the largest magnitude?

(3) Indicate the direction of the electric field at P. You must briefly explain your choice.