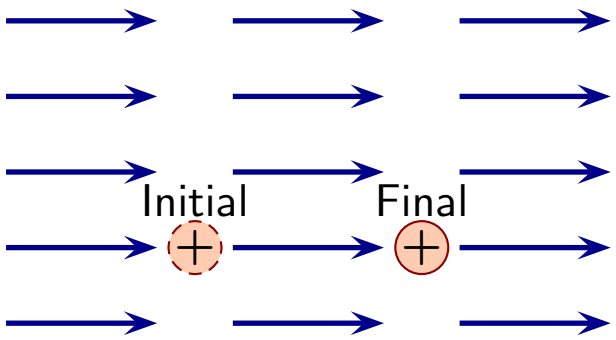
Question 1

A hidden collection of fixed charges produces the uniform electric field as illustrated. A positively charged particle moves in a straight line from the indicated initial to final location.

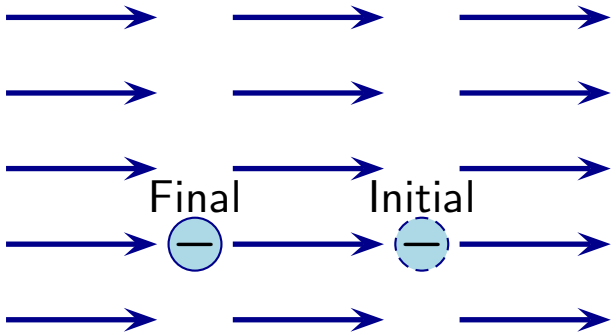


Which of the following is true regarding the work done by the electric field on the particle?

1. $W > 0$.
2. $W < 0$.
3. $W = 0$.
4. W depends on the speed of the charge.

Question 2

A hidden collection of fixed charges produces the uniform electric field as illustrated. A *negatively* charged particle moves in a straight line from the indicated initial to final location.

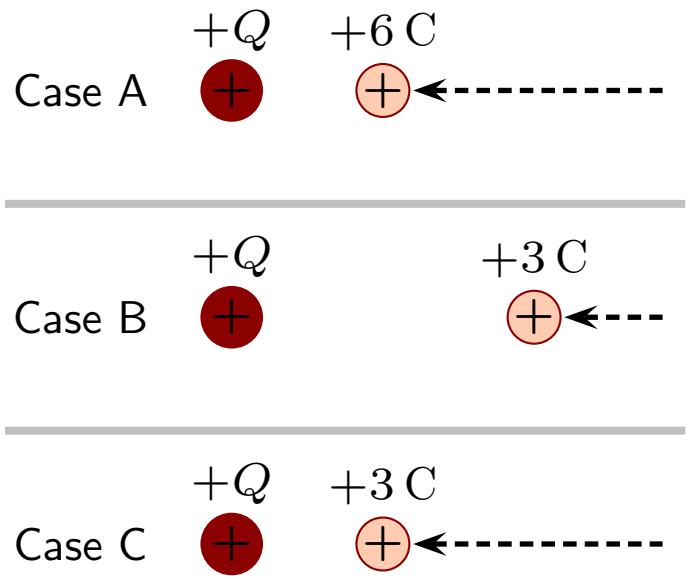


Which of the following is true regarding the work done by the electric field on the particle?

1. $W > 0$.
2. $W < 0$.
3. $W = 0$.
4. W depends on the speed of the charge.

Question 3

Consider the following arrangements of charges. The source charge on the left is the same in all cases and is at rest. The probe charge was moved at constant speed from infinitely far away to its illustrated final location.



Which of the following is true for the electrostatic potential energy stored in the system?

1. $U_\mathrm{A} = U_\mathrm{B} < U_\mathrm{C}$.
2. $U_\mathrm{B} < U_\mathrm{C} < U_\mathrm{A}$.
3. $U_\mathrm{C} < U_\mathrm{B} < U_\mathrm{A}$.
4. $U_\mathrm{B} = U_\mathrm{C} < U_\mathrm{A}$.
5. $U_\mathrm{B} < U_\mathrm{C} = U_\mathrm{A}$.