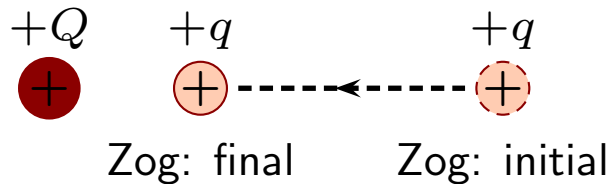


Question 1

A positively charged particle (source) with charge $+Q$ is held fixed. Another object, Zog, with charge $+q$, fired toward the source a long time ago, moves as illustrated.



Assume that the only force acting on the positively charged particle is the electrostatic force due to the source. Which of the following is true for Zog during this motion?

1. $W_{\text{elec}} = 0$ and $\Delta K = 0$.
2. $W_{\text{elec}} > 0$ and $\Delta K > 0$.
3. $W_{\text{elec}} > 0$ and $\Delta K < 0$.
4. $W_{\text{elec}} < 0$ and $\Delta K > 0$.
5. $W_{\text{elec}} < 0$ and $\Delta K < 0$.

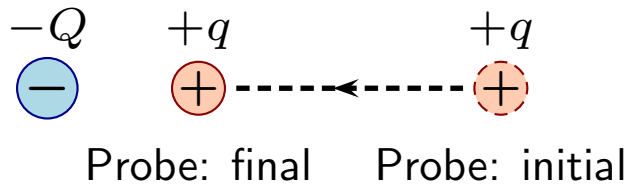
Warm Up Question 1

Consider the figure in the Stop to Think 21.1 exercise. Suppose that an electron is held at rest at point 2 in that figure. The electron is released. Will the electric potential energy of the electron subsequently increase, decrease or stay the same? Explain your answer.

1. Potential energy decreases. Kinetic energy increases.
2. Potential energy decreases. Work done is positive.
3. Stays the same. The electron does not move.
4. Potential energy increases. It moves closer to positive charges.
5. Potential energy increases. It moves region of higher electric potential.

Question 2

A negatively charged particle (source) with charge $-Q$ is held fixed. Positive probe charges move between the same points as illustrated.



Probe A has charge 2.0 C and probe B had charge 10.0 C . Which of the following is true?

1. Work done on probe A is same as that on probe B.
2. Work done on probe B is 5 times larger than on probe A.
3. Work done on probe B is more than 5 times larger than on probe A.
4. Work done on probe B is more between 1 and 5 times larger than on probe A.
5. Work done on probe B is smaller than on probe A.

Warm Up Question 2

Various particles are placed at a location where the electric potential is 30 V. The charge of particle B is seven times the charge of particle A. Describe as precisely as possible how the electric potential energy of B is related to that of A when they are separately placed at this location. Explain your answer.

1. Equal. The potential is the same.
2. Higher for B. Electric potential energy is proportional to charge.
3. Seven times as much for B. $U_{\text{elec}} = qV$.