Masses in Potentials

Consider 3 equal masses sitting in different gravitational potentials:

A) Constant, zero potential
B) Constant, non-zero potential
C) Linear potential ($V \propto x$) but sitting at V = 0

Which statement is true?

1. None of the masses will accelerate
2. Only B will accelerate
3. Only C will accelerate
4. All masses will accelerate, but B will have the largest acceleration
5. All masses will accelerate, but C will have the largest acceleration

Positive Charge

Place a positive charge in an electric field. It will move from

1. higher to lower *electric potential*; lower to higher *potential energy*
2. higher to lower *electric potential*; higher to lower *potential energy*
3. lower to higher *electric potential*; lower to higher *potential energy*
4. lower to higher *electric potential*; higher to lower *potential energy*

Negative Charge

Place a negative charge in an electric field. It will move from

1. higher to lower *electric potential*; lower to higher *potential energy*
2. higher to lower *electric potential*; higher to lower *potential energy*
3. lower to higher *electric potential*; lower to higher *potential energy*
4. lower to higher *electric potential*; higher to lower *potential energy*

Potential and Energy

Which is true?

I. It takes positive work to bring like charges together.

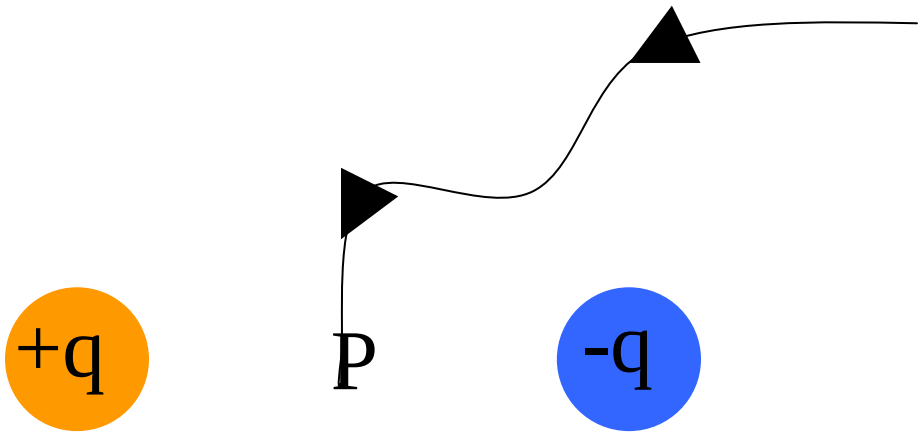
II. Electric field lines always point in the direction of decreasing electric potential.

III. If a negative charge moves in the direction of the electric field, its potential energy decreases.

1. II only.
2. II and III only.
3. I, II and III.
4. I and II only.
5. I only.

Two Point Charges

The work done in moving a positive test charge from infinity to the point P midway between two charges of magnitude +q and –q:



1. is positive.
2. is negative.
3. is zero.
4. can not be determined since not enough information is given.
5. I don’t know

Potential Landscape

If I think of the electric potential as a mountain range, then the electric field points:

1) Up the mountain sides
2) Down the mountain sides
3) Around the mountain sides
4) I don’t know