

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*

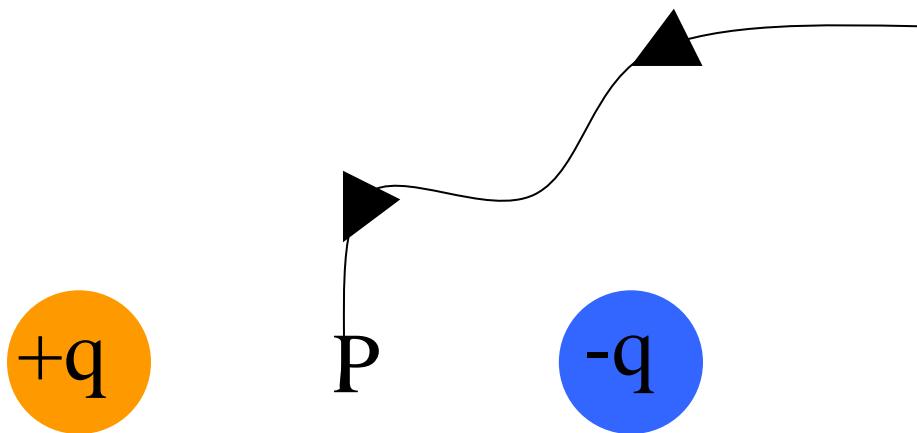
Potential and Energy

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