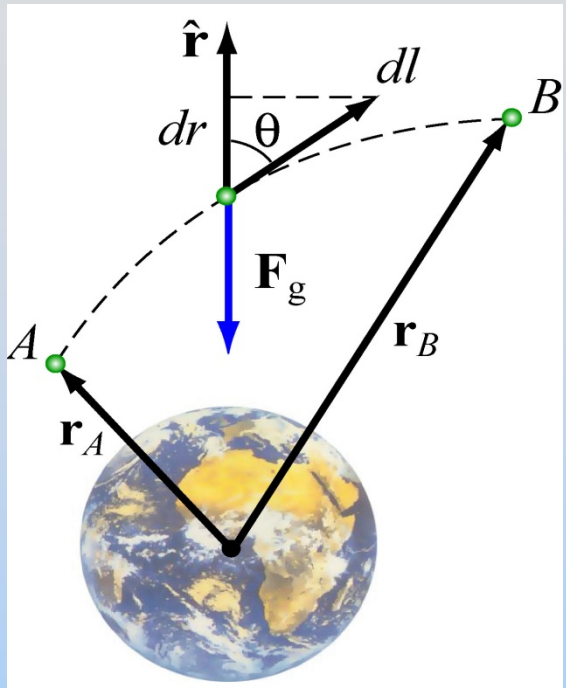
Concept Question: Sign of W_g

Thinking about the sign and meaning of this…

$$W_g = GMm\left(\frac{1}{r_B} - \frac{1}{r_A}\right)$$



Moving from r_A to r_B:

1. W_g is positive – we do work
2. W_g is positive – gravity does work
3. W_g is negative – we do work
4. W_g is negative – gravity does work
5. I don't know

Concept Question: 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 accelerate
2. Only B accelerates
3. Only C accelerates
4. All masses accelerate, B has largest acceleration
5. All masses accelerate, C has largest acceleration
6. I don't know

Concept Question: Positive Charge

Place a positive charge in an electric field. It will accelerate 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*

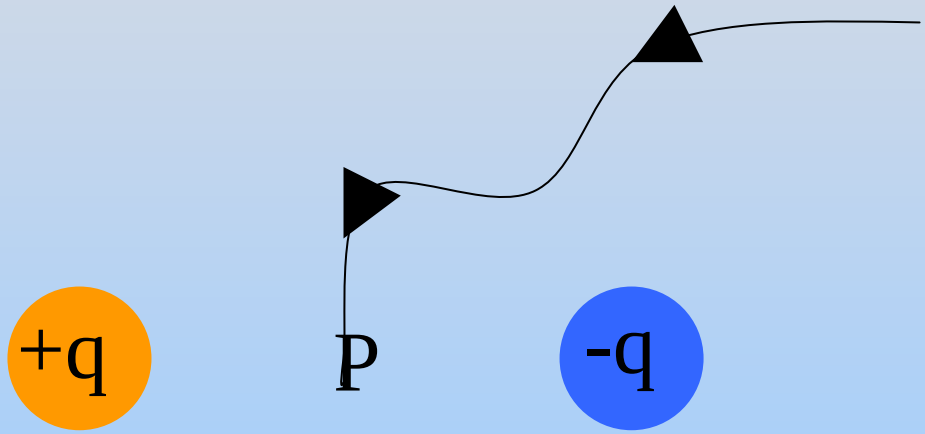
Concept Question: Negative Charge

Place a negative charge in an electric field. It will accelerate 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*

Concept Question: 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 – not enough info is given.
5. I don't know

8.02SC Physics II: Electricity and Magnetism

Fall 2010