

Physics 1214 - General Physics II

Quiz #3 - 2013.01.23

Solutions

1. If a positive charge moves in the direction of an electric field \vec{E} , does the field do positive or negative work on the charge? Also, does the electric potential energy U increase or decrease for this scenario?

The field E does positive work on the charge, and U decreases.

2. What happens if we replace the positive charge in problem 1 with a negative charge?

The field E does negative work on the charge, and U increases.

3. What is the relationship between electric potential energy U and electric potential V ?

The formula which relates the two is $V = \frac{U}{q}$. The electric potential V measures the force per unit charge of the electric field.