#1 Electrostatics and Fields

Equations: F = kq1q2/d2 E=F/qo E=kq/d2 V=W/qo E=V/∆d k=9.0x109Nm2/C2

1. If the charge on one particle was three times its present charge while the charge of the second particle remains the same, then what would be true about the force between the two particles if they were the same distance apart?
2. If one particle had a positive charge that was increased to two times its present charge, and the second particle had a negative charge that was reduced to one-third its original charge, and the distance between them was also reduced by one-third, then what would be the value of the force and would it be attractive or repulsive?
3. What is the force between two particles that both have a charge of 2.4x10-4C and are at a distance of 8.9?
4. What is the strength of the electric field if a particle with a charge of 1.26x10-6C experiences a force of 3.2x10-4N?
5. What is the force on a particle with a charge of 5.52x10-3C if it is in an electric field with a strength of 7.78x102N/C?
6. What is the strength of an electric field at a distance of 2.3cm from a particle that has a charge of 4.92x103C?
7. How far away from a particle are you if the strength of the electric field is 3.2x10-3N/C and the charge of the particle is 2.28x10-2C?
8. What voltage was created if you did 6.3J of work on a particle that had a charge of 2.6x10-3C?
9. What voltage was created by moving a particle 2.3mm though an electric field that has a strength of 6.6x10-3N/C (or V/m)?
10. What is the value of the electrical potential energy contained in a particle with a charge of 1.88x10-8C in an electric field that has a field strength of 3.45x10-4N/C at a distance of 7.9x10-4m from the source of the field?

Answers

1. It would be three times as much.
2. It would have been 6 times greater and attractive.
3. 6.54N
4. 3.75x10-3N/C
5. 4.29N
6. 8.37x1016N/C
7. 2.53x105m
8. 2423V
9. 1.52x10-5V
10. 5.12x10-15J