

Forces, Charges and Separation

We are using the simulation at <http://www.physicsclassroom.com/Physics-Interactives/Static-Electricity/Coulomb-s-Law/Coulomb-s-Law-Interactive> to acquire data for this investigation. Move the charges around and change the magnitude of the charge.

Graphing

Produce graphs to show the following relationships (remember that all other factors must remain constant.)

1. Force vs Charge on one object
2. Force vs Distance between charges
3. Charge on one object vs Distance between charges

Relationships

1. From the graphs, write the proportional relationships.
2. From the graphs, write a verbal description of each relationship.
3. Put all of the relationships together into one single equation that can be used to relate force between two charged objects, the charge on each object and the distance between the objects.
4. According to your equation, what happens to the force between charged objects if you double the amount of charge on one object?
5. According to your equation, what must happen to the charge on one of the objects if you double the separation distance and want the force to remain constant?
6. According to your equation, what happens to the force between two charged objects if the distance between them doubles?