EXAMPLE

The example below shows how to use Coulomb's law to calculate the strength of the force between two charges.

A 0.001 coulomb charge and a 0.002 coulomb charge are 2 meters apart. Calculate the force between them.

Given	**Solution**
The charges have magnitudes of 0.003 C and 0.005 C. The charges are 2 meters apart.	$F = (9\times10^9\ \text{N}\cdot\text{m}^2/\text{C}^2)\dfrac{(0.001\ \text{C})(0.002\ \text{C})}{(2\ \text{m})^2}$ $F = 4500\ \text{N}$ The force is 4500 newtons.
Looking for The force between the charges.	
Relationships $F = k\dfrac{q_1 q_2}{r^2}$	

PRACTICE 2

1. Two particles, each with a charge of 1 C, are separated by a distance of 1 meter. What is the force between the particles?
2. What is the force between a 3 C charge and a 2 C charge separated by a distance of 5 meters?
3. Calculate the force between a 0.006 C charge and a 0.001 C charge 4 meters apart.
4. Calculate the force between a 0.05 C charge and a 0.03 C charge 2 meters apart.
5. Two particles are each given a charge of 5×10^{-5} C. What is the force between the charged particles if the distance between them is 2 meters?
6. The force between a pair of charges is 100 newtons. The distance between the charges is 0.01 meter. If one of the charges is 2×10^{-10} C, what is the strength of the other charge?
7. Two equal charges separated by a distance of 1 meter experience a repulsive force of 1,000 newtons. What is the strength in coulombs of each charge?
8. The force between a pair of 0.001 C charges is 200 N. What is the distance between them?
9. The force between two charges is 1000 N. One has a charge of 2×10^{-5} C, and the other has a charge of 5×10^{-6} C. What is the distance between them?
10. The force between two charges is 2 newtons. The distance between the charges is 2×10^{-4} m. If one of the charges is 3×10^{-6} C, what is the strength of the other charge?

Practice set 2:

1. 9×10^{9} N
2. 2.16×10^{9} N
3. 3375 N
4. 3.38×10^{6} N
5. 5.63 N
6. 0.00556 C
7. 3.33×10^{-4} C
8. 6.7 m
9. 0.03 m
10. 2.96×10^{-12} C