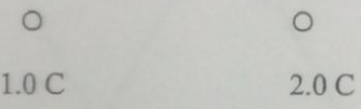
## Coulomb's Law Components

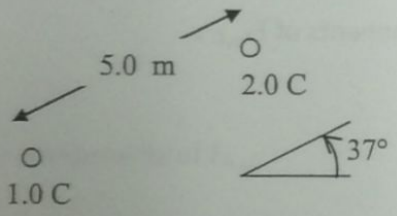
1. A 1.0 C charge is 5.0 m away from a 2.0 C charge.

a. Draw an arrow from the 2.0 C charge to show the force on the 2.0 C charge, and label it showing the magnitude of the force.




b. Draw an arrow to show the force on the 1.0 C charge, and label it with the value of the magnitude. Which Newton's Law is illustrated here?

2. The 2.0 C charge is now 37° above the horizontal, as shown:




a. Draw arrows to show the x- and y- components of force on the 2.0 C charge.

b. Calculate the x- and y- components:

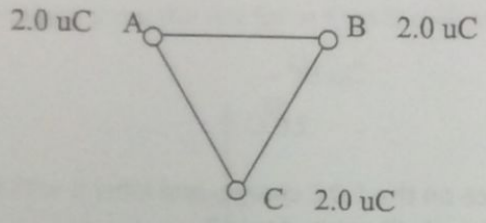
$F_x$ =

$F_y$ =

c. Find the magnitude of the force on the 2.0 C charge, using the Pythagorean theorem.

## Coulomb's Law – Equilateral Triangle

1. Three 2.0 μC charges are arranged in an equilateral triangle as shown. The side of the triangle is 3.0 cm.




a. Draw an arrow on charge C showing the force of charge A on charge C. Find the magnitude of this force.

$F_{A \to C} =$

b. Calculate the x- and y- components of $F_{A \to C}$ :

$F_{A \to C\,x} =$

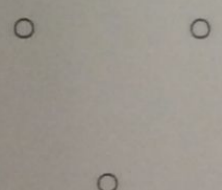
$F_{A \to C\,y} =$

c. Find the net force on charge C by adding the effects of A and B on C:

$F_x = F_{A \to C\,x} + F_{B \to C\,x} =$

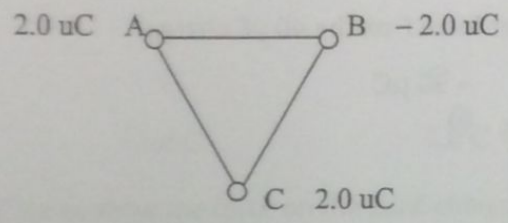
$F_y = F_{A \to C\,y} + F_{B \to C\,y} =$

2. Draw arrows from A, B, and C to show the net force on each:



## Coulomb's Law – Another Equilateral Triangle

1. Two 2.0 μC charges and a – 2.0 μC charge are arranged in an equilateral triangle as shown. The side of the triangle is 6.0 cm.




a. Draw an arrow on charge C showing the force of charge A on charge C. Find the magnitude of this force.

$F_{A\to C} =$

b. Calculate the x- and y- components of $F_{A\to C}$ :

$F_{A\to C\,x} =$

$F_{A\to C\,y} =$

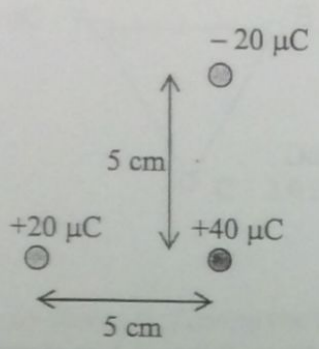
c. Find the net force on charge C by adding the effects of A and B on C:

$F_x = F_{A\to C\,x} + F_{B\to C\,x} =$

$F_y = F_{A\to C\,y} + F_{B\to C\,y} =$

Coulombs Law Vectors

a. Draw an arrow to show the net force F on the 40 μC charge.




b. Find the x- and y- components and the magnitude of the net force on the 40 μC charge.