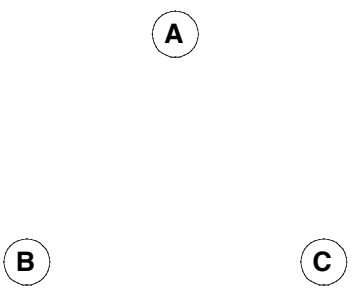
PhyzJob: Coulombic Love Triangles

1. Three charges form an equilateral triangle 5 cm on each side. The charge on A is +7 μC, the charge on B is +13 μC, and the charge on C is –3 μC. Determine the net force on charge A. Begin by listing quantities.



a. What is the magnitude of the electrostatic force of B on A by Coulomb's law?

b. What is the force (written as a vector) of B on A?

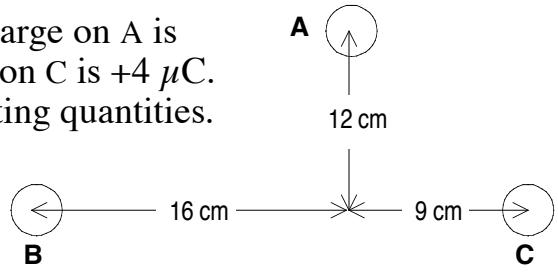
c. What is the magnitude of the electrostatic force of C on A by Coulomb's law?

d. What is the force (written as a vector) of C on A?

e. What is the net force (written as a vector) on A?

e. 35.8 N d. (32.8 N, 90°) = (1.64 N, 32.8 N) c. 2.6 N b. (2.6 N, 300°) = (1.3 N, −2.2 N) a. (50.5 N, 57.8 N) = (76.7 N, 48.5°)

2. Three charges form a triangle as shown. The charge on A is +8 μC, the charge on B is –12 μC, and the charge on C is +4 μC. Determine the net force on charge A. Begin by listing quantities.



a. What is the magnitude of the force of B on A?

b. What is the force (written as a vector) of B on A?

c. What is the magnitude of the force of C on A?

d. What is the force (written as a vector) of C on A?

e. What is the net force (written as a vector) on A?

e. $(-52.0\text{ N}, -5.4\text{ N}) = (52.4\text{ N}, 186^\circ)$