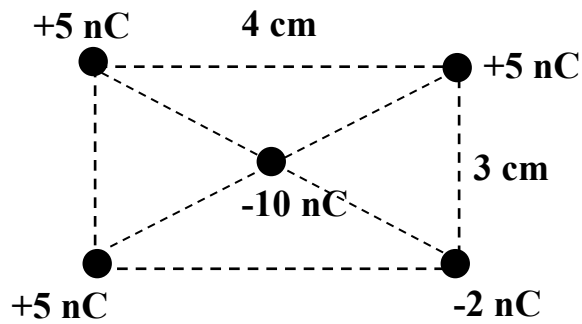


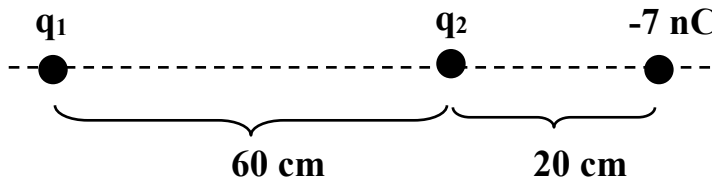
### Exam 1 (practice problems)

1. What is the magnitude of the force on the  $-10\text{ nC}$  charge?



0.001 N

2. Charge  $q_2$  is in static equilibrium. Find the value of charge  $q_1$ ?

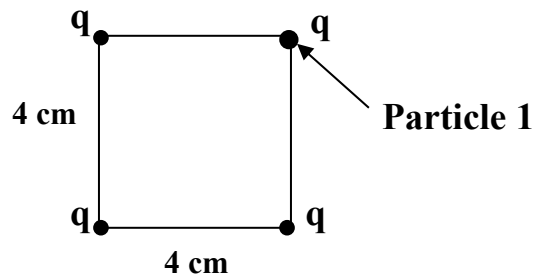


-63 nC

3. Two identical spheres are charged equally and placed  $4.0\text{ cm}$  apart. When released, they begin to accelerate at  $40\text{ m/s}^2$ . The charge on each sphere is  $-20\text{ nC}$ . What is the mass of each sphere?

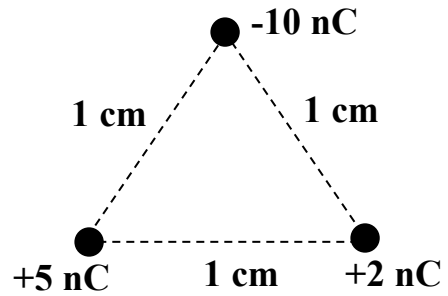
0.056 g

4. Four particles with charges  $q=20\text{ }\mu\text{C}$  each are placed at vertices of a square. What is the magnitude of the net force on particle 1?



4307 N

5. What is the magnitude of the force on 2 nC charge?



0.00115 N

6. Two identical metal spheres A and B are connected by a metal rod. Both are initially neutral.  $2.0 \times 10^{11}$  electrons are removed from sphere A and  $1.0 \times 10^{11}$  electrons are added to sphere B. Then the connecting rod is removed. Afterward, what is the charge of sphere A.

8 nC