Electricity: Electric Force and Electric Fields

This is a preview of the draft version of the quiz

Started: Nov 4 at 10:57am

Quiz Instructions

Question 1 — 1 pts

Two charges exert a force of 20 N on each other at a given distance. If the charges were moved closer together, what changes will be seen in the force they exert on each other?

- There is not enough information to make a prediction.
- The force will decrease.
- The force will increase.
- The force will not change.

Question 2 — 1 pts

What amount of force is felt by a 10 nC charge in an electric field where there strength is 25000 N/C?

- 2.5 N

- 0.025 N
- 0.00025 N
- 2.5 N

Question 3

1 pts

Which of the following most accurately describes electric force and electric field strength?

- Electric force and electric field strength are both vector quantities, but direction only matters when discussing field strength.
- Electric force and electric field strength are both vector quantities, but direction only matters when discussing forces.
- Electric force and electric field strength are both scalar quantities so direction does not matter in discussion of either quantity.
- Electric force and electric field strength are both vector quantities so direction has to be considered when discussing these quantities.

Question 4

1 pts

The concept of a test charge is vitally important in the discussion of electricity, magnetism and electromagnetism. A test charge is a hypothetical charge taken to be much smaller than any other charge under discussion, and to be perfectly accurate, should be taken to be infintesimal. Which of the following reasons explains why a test charge needs to be so small?

- it is the closest to the original system that we can get
- conservation of charge requires that we not change the charge of the system being considered
- a small or infintesimal charge will have small or infintesimal effects on the system
- conservation of energy requires that we minimally disturb the system

Question 5

1 pts

Two electrons are located 1 m apart. What is the magnitude of the force on one of them?

- 2.31x10^−28 N
- 9.23x10^−28 N
- 3.88x10^−26 N
- 2.57x10^−38 N

Question 6

1 pts

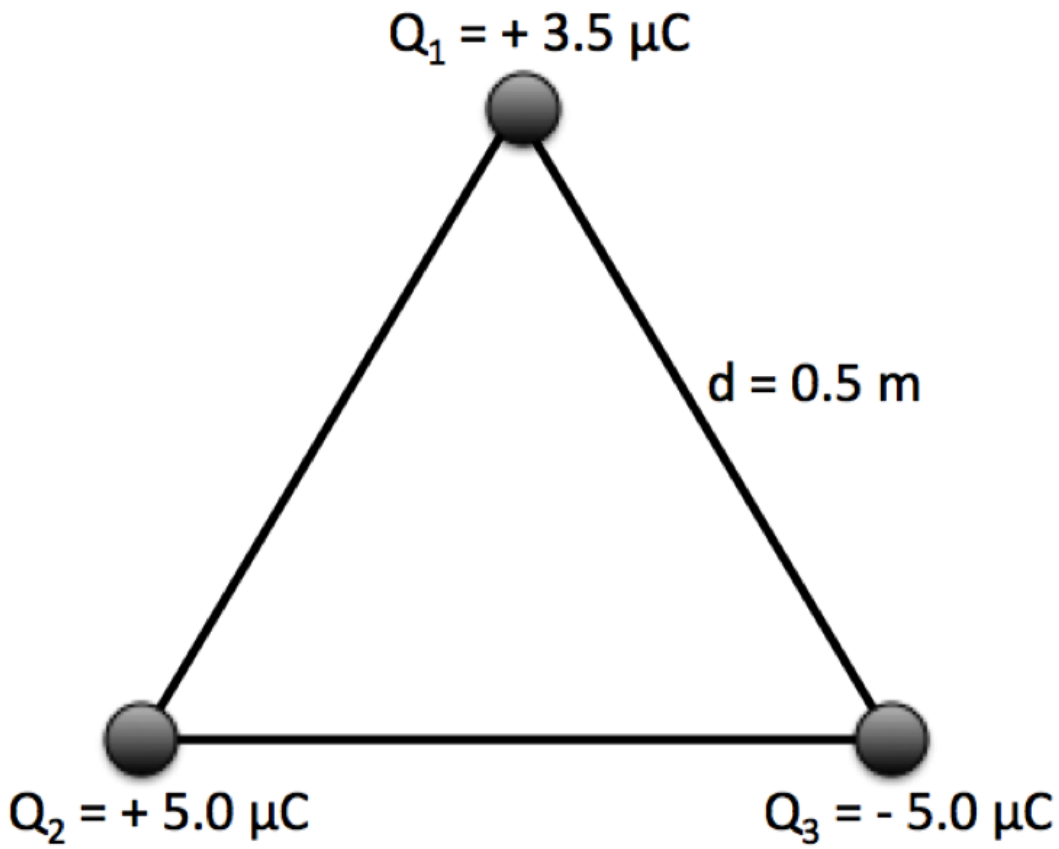
Two charged particles are initially separated by a distance d and the magnitude of the electric force on one is F1. If the distance is doubled, and the magnitude of the force on one of the particles is now F2, what is the ratio of F2/F1?

- 4

- .5
- .25
- 2

Question 7

1 pts



Examine the system of charges above. The charges are arranged at the points of an equilateral triangle. What is the net force on Q1?

- 0.63N to the left
- 0.63N to the right
- 0.315N to the left
- 0.315N to the right

Question 8

1 pts

An isolated, hollow metal sphere is given a charge. Where is the electric field the strongest?

- along the inner surface of the sphere
- at the center of the sphere
- along the outer surface of the sphere
- at infinity

Question 9

1 pts

The electric field strength 1m from a charge is 4000N/C. What is the strength of the field 2m from the charge?

- 4000 N/C
- 8000 N/C
- 2000 N/C
- 1000 N/C

Question 10

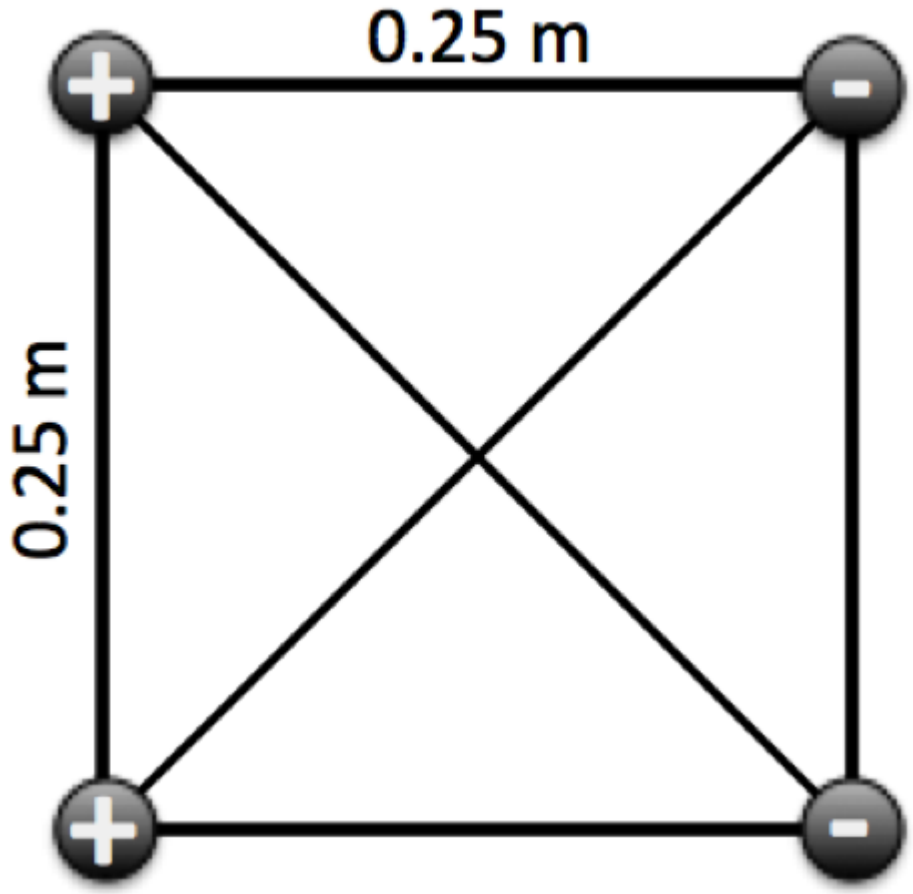
1 pts

Two charges are positioned along the x-axis. A 5.0μC charge is located at the origin and a −3.0μC is located at +1.0m. At what point on the x axis is the net electric field zero

- +4.44 m
- -0.52 m
- +1.15 m
- +0.25 m

Question 11

1 pts



Four charges are arranged in a square with sides of length 0.25m. All four charges have a magnitude of 6.0μC and their type of charge is labeled on the diagram above. What is the magnitude of the electric field at the center of the square?

- 1.72x10^6 N/C
- 2.44x10^6 N/C
- 4.88x10^6 N/C

- 1.22x10^6 N/C

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