PQ 3 Electrostatics

Questions

Q1

A negative charge of -2.0×10^{-4} C and a positive charge of 8.0×10^{-4} C are separated by 0.30 m. What is the force between the two charges?

Q2

A negative charge of -6.0×10^{-6} C exerts an attractive force of 65 N on a second charge that is 0.050 m away. What is the magnitude of the second charge?

Q3

Lightning A strong lightning bolt transfers about 25 C to Earth. How many electrons are transferred?

Q4

A positive and a negative charge, each of magnitude 2.5×10^{-5} C, are separated by a distance of 15 cm. Find the force on each of the particles.

Q5

A force of 2.4×10^2 N exists between a positive charge of 8.0×10^{-5} C and a positive charge of 3.0×10^{-5} C. What distance separates the charges?

Q6

Two identical positive charges exert a repulsive force of 6.4×10^{-9} N when separated by a distance of 3.8×10^{-10} m. Calculate the charge of each.

Q7

A small sphere of charge 2.4 μC experiences a force of 0.36 N when a second sphere of unknown charge is placed 5.5 cm from it. What is the charge of the second sphere?

Q8

The force between a proton and an electron is 3.5×10^{-10} N. What is the distance between these two particles?

Q9

- Positive test charge of 5.0×10^{-6} C is in a field that exerts a force of 2.0×10^{-4} N on it. What is the magnitude of the electric field at the location of the test charge?

Q10

- A negative charge of 2.0×10^{-8} C experiences a force of 0.060 N to the right in an electric field. What are the field's magnitude and direction at that location?