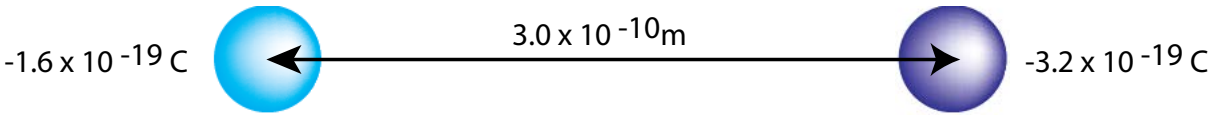
Electromagnetism

Fields

Electric field strength
Coulomb's Inverse Square Law
Electrical potential and electric field strength around a point charge and a system of charges
Potential difference and electric field strength for a uniform electric field

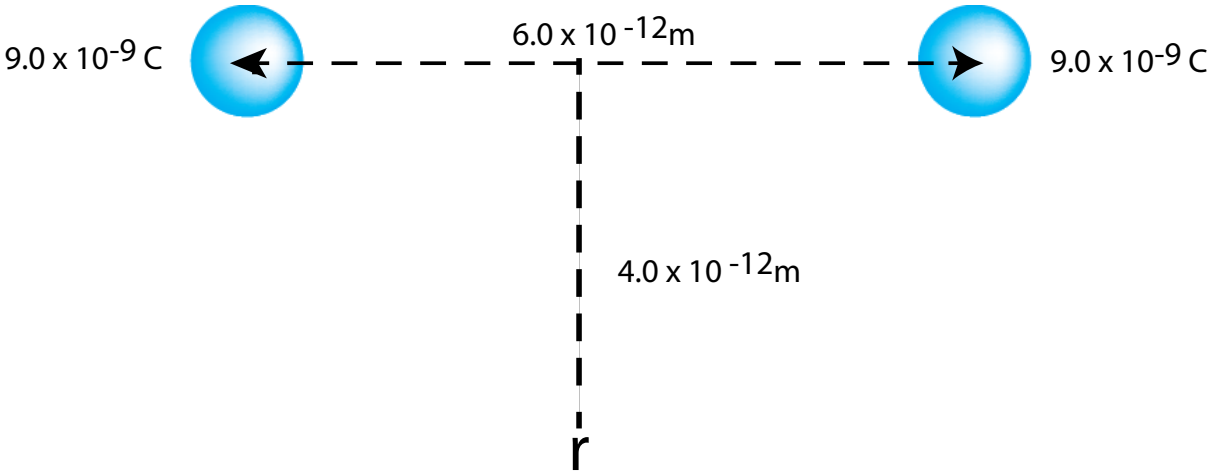
1. Two charges are shown below.



i) Calculate the force the charges exert on each other. Remember force is a vector.

ii) Find the position between these charges where the total force on a charge particle is zero.

2. Two charges are shown below.



i) Calculate the Electric field strength at r.

ii) Calculate the force on a 2.5 pC charge at point r. 1 pico = 10^{-12}.

iii) Calculate the potential at r due to these charges.

iv) Calculate the potential energy of a 2.5 pC charge at point r.

v) Suppose one of these charges was -9.0 x 10^{-12} C. What would the answers to iii) and iv)?