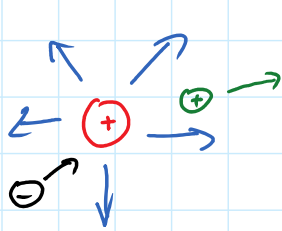


Electrostatic Force

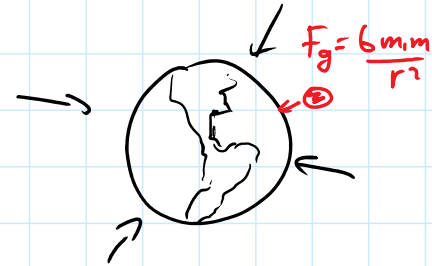
Wednesday, November 29, 2017 9:43 AM



If a 2nd charged object is brought into an electric field the object will be either attracted or repelled depending on the charge

$$F_e = \frac{k Q_1 Q_2}{r^2}$$

- vector, direction
- units are N.



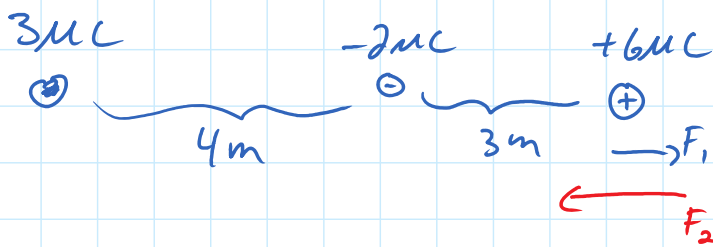
Ex Find the F_e on the following 2 objects

$3\mu C$ (+) $-2\mu C$ (-)
4m

$$F_e = \frac{k Q_1 Q_2}{r^2} = \frac{(9 \times 10^9)(3 \times 10^{-6})(2 \times 10^{-6})}{4^2}$$

$$= 3.38 \times 10^{-3} \text{ N (attractive)}$$

Ex



Find the F_e on the 6μC charge from the other 2

$$F_1 = \frac{(9 \times 10^9)(3 \times 10^{-6})(6 \times 10^{-6})}{7^2}$$

$$= 3.31 \times 10^{-3} \text{ N}$$

$$F_2 = \frac{(9 \times 10^9)(2 \times 10^{-6})(6 \times 10^{-6})}{3^2}$$

$$= 12 \times 10^{-3} \text{ N}$$

$$2 \times 10^{-3} - 3.3 \times 10^{-3} = 8.7 \times 10^{-3} \text{ N (left)}$$

P. 152 # 3, 4, 9 \bar{E}

P. 145 # 3, 6 \bar{F}_e