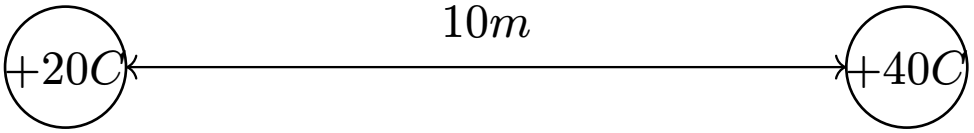
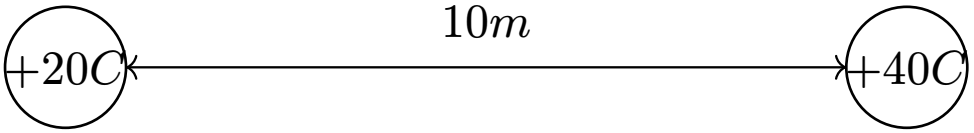
Problem-Set: 02

Static Electricity (Coulomb's Law)

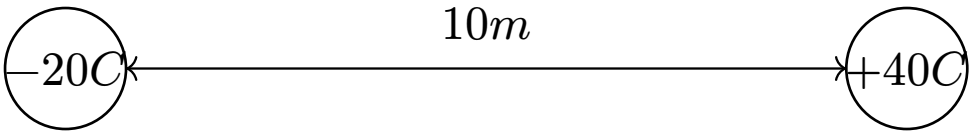
1. At what point on the connecting straight line will the force exerted on a placed $+5C$ be equal?



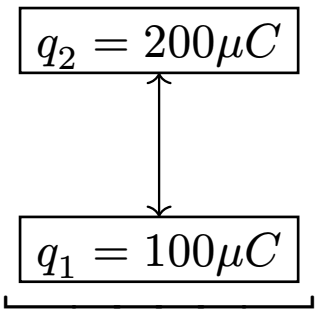
2. At what point on the connecting straight line will the force exerted on a placed $+5C$ be zero?



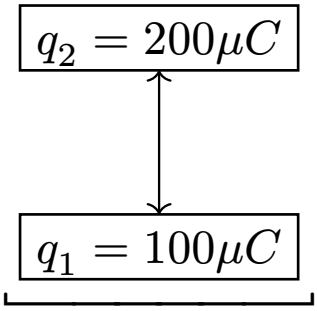
3. At what point on the connecting straight line will the force exerted on the $+5C$ be zero?



4. What will happen if the distance between the objects are greater than equilibrium?$[m_1 = 10mg]$



4. **What will happen if the distance between the objects are less than equilibrium?**$[m_1 = 10mg]$



5. **Two objects of equal mass and charge are tied to a** $2m$ **long string and hung side by side. As a result they repel each other and move** $20cm$ **apart in equilibrium. If the mass of the two charged object is** $10g$**, What is the magnitude of their charge?**
6. **Two objects of equal mass and charge are tied to a** $2m$ **long string and hung side by side. As a result they repel each other and move** $20cm$ **apart in equilibrium. Now, the two charges are repeatedly touched by hand and the charge value decreases by** $2 \times 10^{-10}C$ **with each touch. At which rate will the dis-**

tance between then decrease?[The mass of the two charged objects is $10g$*]*