

Name: _____ Section: _____ Score: _____/20

1. Very small metal spheres A and B are on glass stands placed 0.3 m apart as in Fig. 1.

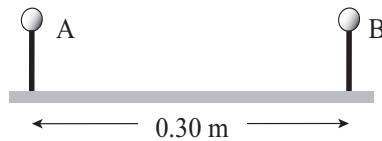


Figure 1:

- (a) Initially, A has $5 \mu\text{C}$ and B has $-1 \mu\text{C}$ charges. What is the force acting on A due to B? Compute its magnitude and indicate its direction in the figure with an arrow [5].

- (b) After A and B are connected with a conducting wire, they are again isolated and 0.3 m apart as before. What is the force acting on B due to A? Compute its magnitude and indicate its direction in the figure with an arrow. [5]

2. Look at the configuration of three charges in the figure 2. A and C have $2\ \mu\text{C}$ and B $-2\ \mu\text{C}$.

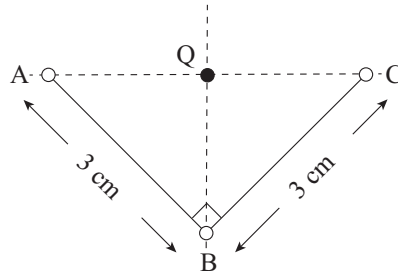


Figure 2:

(a) What is the total force acting on B from the other charges at A and C? Compute its magnitude and indicate its direction in the figure 2 with an arrow [5].

(b) Q is the point equidistant from all three points A-C and on the line connecting A and C. What is the total force acting on a $2\ \mu\text{C}$ charge placed at Q? Compute its magnitude and indicate its direction in the figure 2 [5].