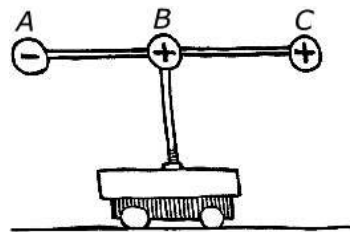


NAME _____

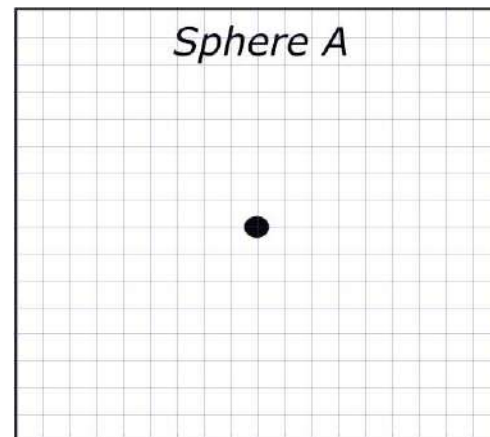
DATE _____

Scenario

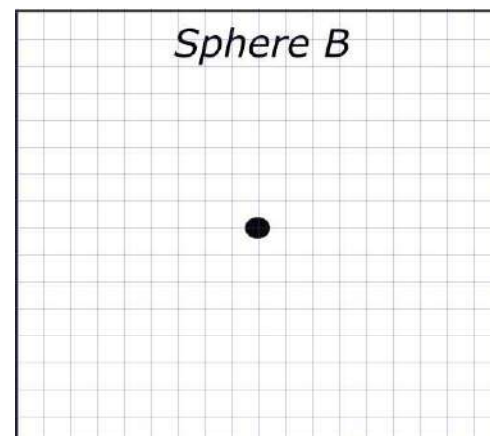
A cart supports three metal spheres, as shown. The cart and the rods supporting the spheres are all very light and nonconducting. Sphere A and Sphere C are the same distance from Sphere B. All three spheres have the same magnitude charge. The cart sits at rest on a smooth table.

**Using Representations**

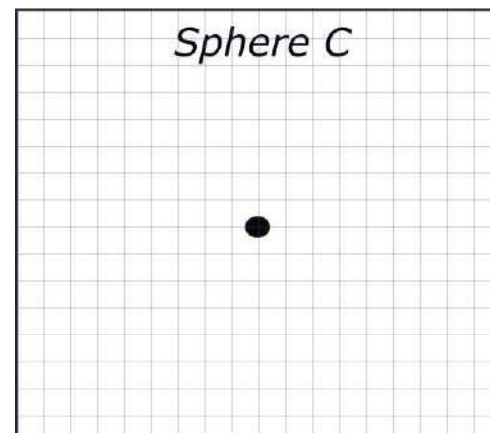
PART A: The dot to the right represents Sphere A. Draw a free-body diagram showing and labeling the electric forces only (not components) exerted on Sphere A from the other two spheres. Draw the relative lengths of all vectors to reflect the relative magnitudes of all the forces.



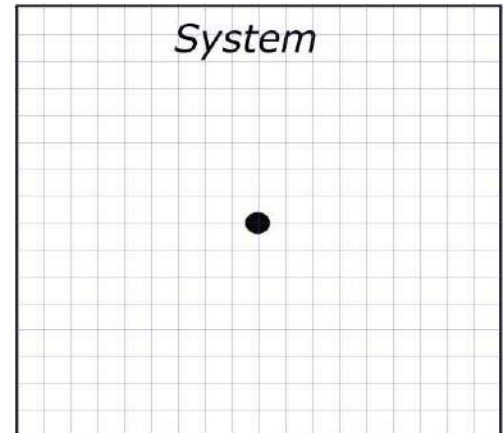
PART B: The dot to the right represents Sphere B. Draw a free-body diagram showing and labeling the electric forces only (not components) exerted on Sphere B from the other two spheres. Draw the relative lengths of all vectors to reflect the relative magnitudes of all the forces.



PART C: The dot to the right represents Sphere C. Draw a free-body diagram showing and labeling the electric forces only (not components) exerted on Sphere C from the other two spheres. Draw the relative lengths of all vectors to reflect the relative magnitudes of all the forces.



PART D: The dot to the right represents the system of the three spheres, support rods, and cart. Draw a free-body diagram showing and labeling the net electric forces only (not components) exerted on the system. Draw the relative lengths of all vectors to reflect the relative magnitudes of all the forces.



Argumentation

PART E: If released from rest, will the cart accelerate to the left, right, or remain at rest. Explain in a clear, coherent, paragraph-length response.

_____ Accelerate left _____ Accelerate right _____ Remain at rest
