

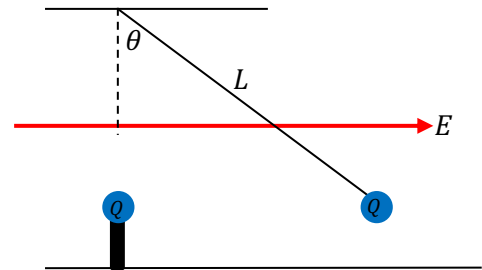
Name \_\_\_\_\_

Physics 111 Quiz #2, September 15, 2025

*Please show all work, thoughts and/or reasoning to receive partial credit. The quiz is worth 10 points total, and all parts may not be of equal weight.*

*I affirm that I have carried out my academic endeavors with full academic honesty.*

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1. Two positive point-charges each with magnitude  $Q = 6\mu\text{C}$  are shown below. The point-charge on the left is fixed in space and cannot move while the point-charge on the right is attached to a light string of length  $L = 65\text{cm}$ . The string is attached to the ceiling directly above the left point-charge. The right point-charge is in equilibrium when the angle that the string makes with the vertical is  $\theta = 50^\circ$ . An external uniform electric field  $E$  points from the left to the right everywhere in space with magnitude  $2.7 \times 10^5 \frac{\text{N}}{\text{C}}$ . What is the net electric field at the location of the right point-charge attached to the string?



2. What is the net electric force on the right point-charge attached to the string?

3. What is the magnitude of the tension in the string?
4. What is the mass of the right point-charge attached to the string?
5. Suppose that the string is cut. What is the initial horizontal acceleration of the mass?