

Introductory Electricity

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QUIZ 1

Instructions:

1. You can use any class reference materials to help you with this quiz.
2. You have 15 minutes to complete the quiz. Good luck!

NAME: _____

(20 points) Consider three charges $q_1 = 2e$, $q_2 = e$, and $q_3 = -3e$, where $e = 1.602 \times 10^{-19}$ C is the elementary charge quantum. The three charges are confined to a two-dimensional space onto which the Cartesian coordinate is fixed. The first charge q_1 is fixed at $(0, 2)$, and the second charge q_2 is fixed at $(3, 0)$. The third charge is the only charge allowed to move on this plane. We are interested in placing the third charge q_3 on the plane such that it feels no electric force. Without explicitly finding the coordinates at which the third charge should be placed, determine a *set* of (2) equations that would characterize this location.