2. In the rectangle shown, the sides have lengths 5.0 cm and 15 cm, q_1 = -5.0 μC, and q_2 = +2.0 μC. With V = 0 at infinity, what is the electric potential at

(a) corner *A* and [1 mark]

(b) corner *B*? [1 mark]

(c) How much work is required to move a charge q_3 = +3.0 μC from *B* to *A* along a diagonal of the rectangle? [1 mark]

(d) Does this work increase or decrease the electric potential energy of the three-charge system? [1 mark]

Is more, less, or the same work required if q_3 is moved along a path that is

(e) inside the rectangle but not on a diagonal and [0.5 marks]

(f) outside the rectangle? [0.5 marks]