Exercise

Electrostatics

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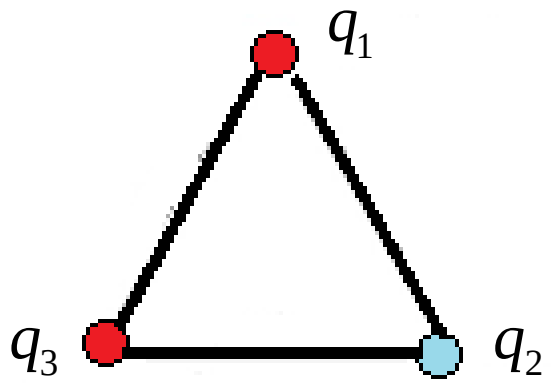
7.1 Coulomb's Law

Given charge Q_1 = -8 µC and Q_2 = +12 µC. These two charges are located 12 cm from of each other. The charge Q_3 is placed in the middle between the two charges. Calculate the total force on Q_3 = -4 µC.

Ans : 199.7 N, toward +Q

7.1 Coulomb's Law

Three charges, q_1 = +8 μC, q_2 = -4 μC and q_3 = +2 μC, are located at corners of a symmetrical triangle with 80 mm on each side as shown in diagram. Determine the total force on charge q_1?



Ans : 39.0 N, 330

7.2 The Electric Field

A positive charge with magnitude 4.0x 10^{-9} C is located at the origin of coordinate. Find the electric field at x = 25.0 cm?

Ans: 576 N/C

7.2 The Electric Field

The charge Q_1 = -8.0 µC and Q_2 = +5.8 µC are placed 8.0 cm apart. Calculate the net the electric field in the middle of the two charges.

Ans: 7.8×10^7 N/C, toward $-Q_2$