Answer on Question #51297-Physics-Field Theory
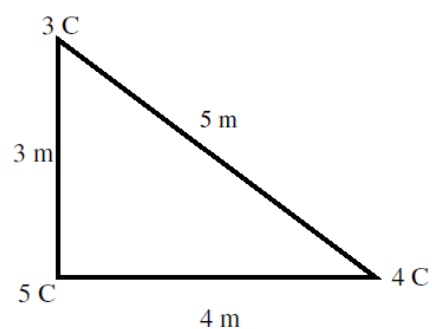
Determine the electric potential energy of the system of Charges shown in figure below:

Solution

The electric potential energy of the system of Charges is

$$U = k\left(\frac{q_1 q_2}{r_{12}} + \frac{q_3 q_2}{r_{32}} + \frac{q_1 q_3}{r_{13}}\right) = 9 \cdot 10^9 \left(\frac{3 \cdot 5}{3} + \frac{4 \cdot 5}{4} + \frac{3 \cdot 4}{5}\right) = 1.116 \cdot 10^{11} J.$$