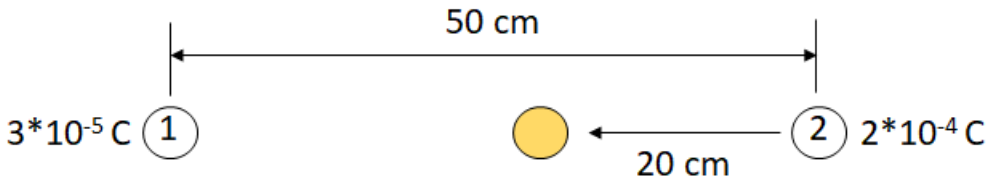
**Answer on Question #84920 – Physics – Electromagnetism**

## Task:

How much work is required to carry a charge of $3*10^{-5}$ C from a point 50cm from a charge $2*10^{-4}$ C to a point 20cm from it?

## Solution:




$$W = \Delta E = \frac{kQ_1Q_2}{r_1} - \frac{kQ_1Q_2}{r_2}$$

$$W = \frac{(9*10^9 \frac{N*\mathrm{m}^2}{C^2})(3*10^{-5}\ \mathrm{C})*(2*10^{-4}\ \mathrm{C})}{0.5\,\mathrm{m}} - \frac{(9*10^9 \frac{N*\mathrm{m}^2}{C^2})(3*10^{-5}\ \mathrm{C})*(2*10^{-4}\ \mathrm{C})}{0.2\,\mathrm{m}} =$$

$$= -162 N*\mathrm{m} = -162 J$$

$$W = -162 J$$

$$|W| = 162\ Joule$$

**Answer:** 162 Joule.