ELECTRIC FIELD

\[ E = \frac{F_e}{q} \]
q is called a "test charge"

All the other charges are called the "source charges". They are the source of the ELECTRIC FIELD at the point where the test charges is located.

\[ \vec{F} = k \frac{Q_1 Q_2}{R^2} \]

\[ F_{2,5} = \frac{k Q_1 Q_2}{8^2} = k \frac{6nC \times 5nC}{64} = \frac{90}{64} \times 10^{-9} \text{N, West} \]

\[ F_{6,5} = \frac{k Q_1 Q_2}{R^2} = \frac{k \times 6nC \times 5nC}{10^2 + 2^2} = \frac{k \times 30}{104} = \frac{270}{104} \times 10^{-9} \text{N, 11.31° E of N} \]

\[ \left( \frac{270}{104} \times 10^{-9} \text{N sin(11.31°)}, \frac{270}{104} \times 10^{-9} \text{N cos(11.31°)} \right) \]

Total \( F_e \) on 5nC = "vector sum" \( F_{2,5} + F_{6,5} \)