

(No subject)

From: Jerry Franklin (jerroldfranklin@yahoo.com)

To: jerroldfranklin@yahoo.com

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*The discreteness of electric charge (see Section 1.1) means that this to realize physically. This is an example of a mathematical idealization.
†The question of units is discussed in detail in the Appendix.

Chapter 1 Introduction to Electrostatics—SI

of approximately 8.9874×10^9 V/m (8.9874 GV/m) electron ($q \approx 1.602 \times 10^{-19}$ C) produces a field V/m (1.44 nV/m) at 1 meter.

The experimentally observed linear superposition of point charges means that we may write the electric field of n point charges q_i , located at \mathbf{x}_i , $i = 1, 2, \dots, n$, as the vector sum

$$\mathbf{E}(\mathbf{x}) = \frac{1}{4\pi\epsilon_0} \sum_{i=1}^n q_i \frac{\mathbf{x} - \mathbf{x}_i}{|\mathbf{x} - \mathbf{x}_i|^3}$$

