Physics 202, Lecture 2

Today's Topics

- Electric Force and Electric Fields
  - Electric Charges and Electric Forces
  - Coulomb's Law
  - Physical Field
  - The Electric Field
  - Electric Field Lines
- Motion of Charged Particle in Electric Field

A Reminder

Lectures supplement but do not substitute for reading !

Lecture Effectiveness =

Preview + Lectures + Review

Properties of Electric Charges

- 2+1 types: positive, negative (+neutral).
- Unit: Coulomb (C). 1 C= charge of 6.24×10^{18} protons.
- Electric charge is quantized: $q = \pm Ne$, $e = 1.602 \times 10^{-19}$ C
- Building blocks of matters:

	Charge (C)	Mass (kg)
Electron	$-e = -1.602 \times 10^{-19}$	9.11×10^{-31}
Proton	$+e = +1.602 \times 10^{-19}$	1.673×10^{-27}
Neutron	0	1.675×10^{-27}

- Electric charge is conserved: charges can be moved around, but the total charge remains the same.

❑ For deep thinkers: Why electrons and protons have the same electric charge?