

8/28/14

Phys 1402

Lecture 1

Electricity

Electrostatics

DC Circuits

Magnetism

Magnetic Fields

AC Circuits

Waves & Optics

General Wave & Vibration Properties.

Examples: Sound, Strings, EM waves.

Optics

Gravity

- Mass is the important amount of stuff, measured in kilograms (kg).
- Massive objects cause gravitational fields and potentials.
 $g = 9.8 \text{ N/kg}$ is the downward "field"
- Massive obj's "feel" fields by feeling the force $F_g = mg$.
- The gravitational potential determines both the energy and force of gravity.

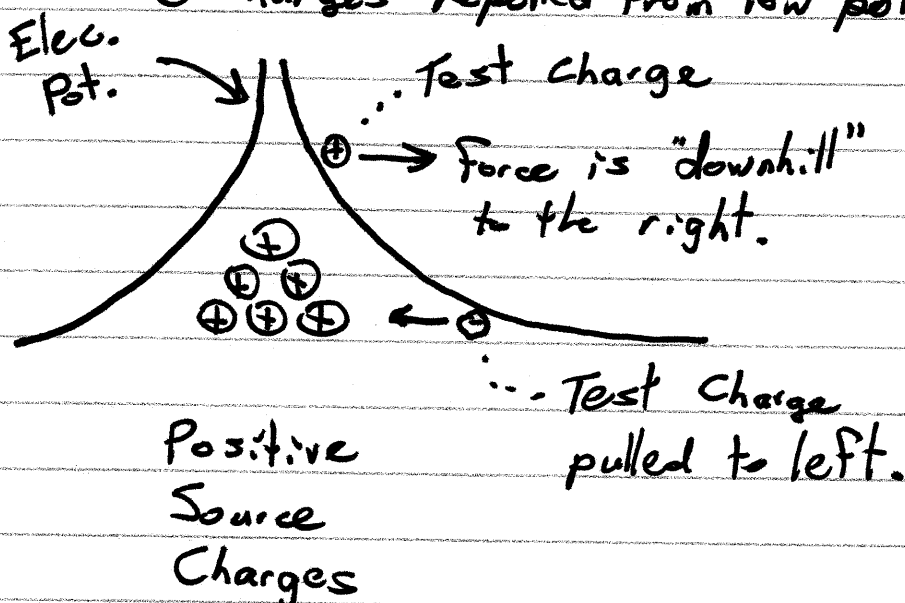
②

Phys 1402 Lec 1 Grav Potential

- Masses are all \oplus .
- Masses cause \ominus grav potential depressions.
- The grav field points "downhill" with a strength of the "steepness".
- Masses are attracted to low potential.

Electric Potential

- Charges can be \oplus or \ominus .
- \oplus Charges cause \oplus elec potential.
- \ominus Charges create \ominus elec potential.
- The E-field points "downhill".
E points away from \oplus charges and toward \ominus charges.
- \oplus Charges attracted to low elec potential.
- \ominus Charges repelled from low potential.



Net result: Opposites Attract.
Like Charges Repel.