

get your clickers

Any Qs?

Review for 2nd Semester Final part 2:

- Circuits (chapter 21)
- Electromagnetism (chapters 22 & 23)
- Lenses (chapter 26)

Jun 1-8:10 AM

21 CIRCUITS

$$V = IR$$

→ CURRENT IN AMPS



$$I = \frac{Q}{t}$$

CHARGE IN COULOMBS

CAPACITORS

$$C = \frac{\epsilon_0 A}{d}$$

"BUILDING EQ'N"

$$C = \frac{Q}{V}$$

"USING EQ'N"

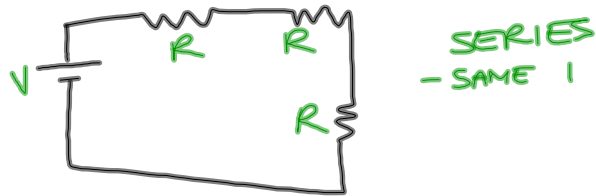
$$R = \frac{\rho L}{A}$$

"RESISTIVITY" (A MATERIAL PROPERTY)

A diagram of a cylindrical resistor. The cylinder is oriented horizontally. The length of the cylinder is labeled with the letter 'L' and a double-headed arrow below it. The cross-sectional area of the cylinder is labeled with the letter 'A' and a double-headed arrow to the left of the cylinder's front face. The cylinder is shaded with a grid pattern.

$$P = IV \left(= I^2 R = \frac{V^2}{R} \right)$$

Jun 1-8:32 AM



SERIES
- SAME I



PARALLEL
- SAME V

$$R_{TOT, \text{SERIES}} = R_1 + R_2 + \dots$$

$$\frac{1}{R_{TOT, \parallel}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

$$\frac{1}{C_{TOT, S}} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$$

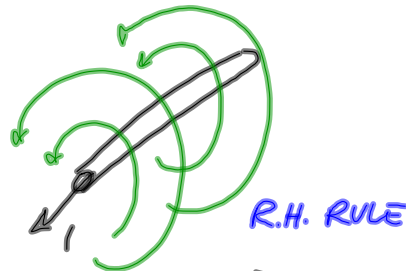
$$C_{TOT, \parallel} = C_1 + C_2 + \dots$$

Jun 1-8:38 AM

22 & 23 ELECTROMAGNETISM

CURRENT \Rightarrow MAG. FIELD

$$B = \frac{\mu_0 I}{2\pi r}$$



R.H. RULE

MOVING CHARGES FEEL A FORCE FROM B FIELDS

$$F = qvB \sin \theta$$

MAG OF FORCE
USE R.H. RULE
FOR DIRECTION

A WIRE W/ CURRENT IS JUST A SPECIAL CASE OF

$$F = BIl \sin \theta$$

Jun 1-8:42 AM

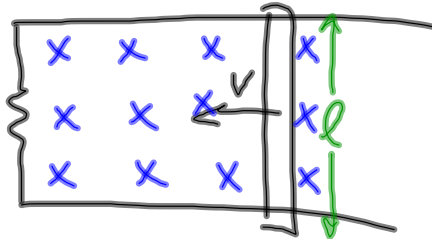
B-FIELD $\xrightarrow{?}$ CURRENT
YES

$$\mathcal{E} = -\frac{\Delta\Phi}{\Delta t}$$

$$\Phi = BA \cos \theta$$

→ MAG FLUX

SPECIAL CASE



$$\mathcal{E} = Blv$$

Jun 1-8:48 AM

$$F = qvB \sin \theta$$

$$B = \frac{F}{qv}$$

$$= \frac{7.2 \times 10^{-18} \text{ N}}{(1.6 \times 10^{-19}) (4.5 \times 10^4 \text{ m/s})}$$

$$(1.6 \times 10^{-19}) (4.5 \times 10^4 \text{ m/s})$$

Jun 1-9:17 AM