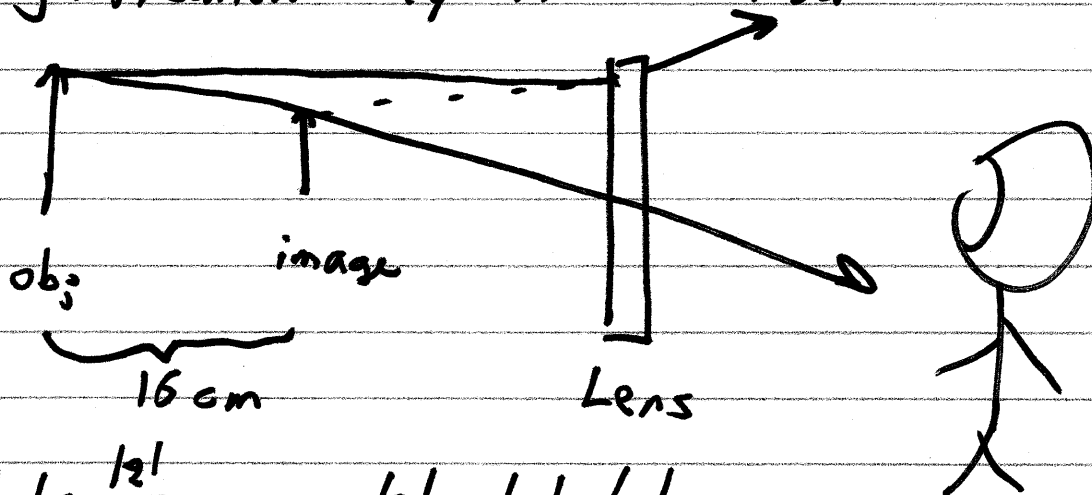


① Phys 2426 2014-12-01

Last Class!

Exam Wed 12/10 1:45-4:15 pm

Obj: Upright Image - image is virtual  
Magnification says it's reduced



$$|m| = \frac{|q|}{|p|}$$

$$|q| = |m| |p|$$

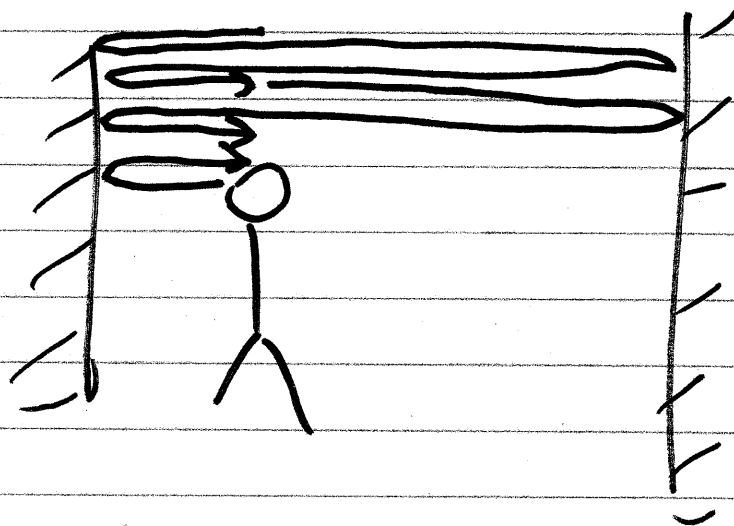
$$|p| - |q| = 16 \text{ cm}$$

Now know  $|q|$

$q = -|q|$  because virtual.

②

HW6 #9



$$\begin{array}{lcl} 1^{st} & : & 2 d_{front} \\ 2^{nd} & : & 2 d_{front} + 2 d_{back} \\ 3^{rd} & : & \quad \quad \quad + \quad \quad \quad + 2 d_{front} \end{array}$$

③

# Review of Electrostatics

$$\vec{F}_E = q \cdot \vec{E}$$

$$\Delta V = -\vec{E} \cdot \Delta \vec{x}$$

↑  
Voltage

$$\text{Energy} = \Delta V q$$

$\vec{E}$  is measured in  $N/C$  and  $V/m$ .

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

Capacitance (C) in farads (F)

$$\text{Ex: } C = K \epsilon_0 A / d$$

↑  
Dielectric const, usu 1

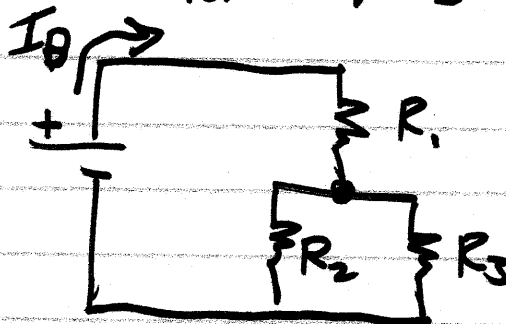
## DC Circuits

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

$$V = IR$$

Parallel:  $I_{\text{tot}} = I_1 + I_2 + \dots$

Series:  $V_{\text{tot}} = V_1 + V_2 + \dots$



$$V_{\text{Batt}} = 12 \text{ V}$$

$$V_3 = 4 \text{ V}$$

$$V_1 = 8 \text{ V}$$

$$V_2 = 4 \text{ V}$$

$$I_{\text{batt}} = 7 \text{ A}$$

$$I_3 = 4 \text{ A}$$

(4)

## Magnetism

$$\vec{F} = q\vec{v} \otimes \vec{B} \quad (\text{Right-hand rule})$$

$$\tau = NBA I$$

Sources of B: wire, coil, solenoid

$$B = (\sim) I$$

Applications:

Velocity selector

$$F_E = F_B$$

$$qE = qvB$$

Mass spectrometer

$$r = \frac{mv}{qB}$$

## Induction

$$\Phi = NBA \cos \theta$$

$$\mathcal{E} = \Delta \Phi / \Delta t$$

$$\mathcal{E}_{\max} = NBA \omega$$

↑  
spinning rate

$$\mathcal{E} = L \frac{dI}{dt}$$

$$\Phi = L I$$

$$\text{Ex: } L = \mu_0 N^2 A / l$$

↑  
Inductance

↘  
length