Review #3 Equations (Chapters 14, 15, 16:1-3, 17)

Relationships you should know (Will not be on equation sheet)

Right Hand Rules:
1. Point thumb in direction of current and fingers wrap around wire, pointing in the direction of the Magnetic field.
2. Point index finger in direction of current or charge velocity, point middle finger in direction of Magnetic field and thumb points in direction of Magnetic force.

Lenz’s Law:
- An induced emf always gives rise to a current whose magnetic field opposes the original change in magnetic flux

Sign Conventions for Mirrors and Lenses
Converging Lens/Concave Mirror:  + f Diverging Lens/Convex Mirror:  – f

Equations / Constants that will be on equation sheet

Constants:

\[ q_{proton} = 1.6 \times 10^{-19} \text{C} = -q_{electron} \]
\[ k' = 1 \times 10^{-7} \text{N/A}^2 \]
\[ k = 9.0 \times 10^9 \text{N} \cdot \text{m}^2/\text{C}^2 \]
\[ c = 3.0 \times 10^8 \text{m/s} \]

Equations:

\[ \frac{F}{l} = \frac{2k'I_1I_2}{r} \quad F = qvB \quad \mathcal{E} = \frac{\Delta \Phi}{\Delta t} \quad \Phi = B_{\perp} A \quad \frac{\Delta V_2}{\Delta V_1} = \frac{N_2}{N_1} \]
\[ \frac{I_2}{I_1} = \frac{N_1}{N_2} \quad f = \frac{1}{T} \quad v = f\lambda \quad v = \frac{\sqrt{F}}{\mu} \quad f_1 = \frac{v}{2L} \]

path difference = \( d \frac{y}{x} \)

\[ \theta_{\text{incident}} = \theta_{\text{reflected}} \]
\[ n_1 \sin \theta_1 = n_2 \sin \theta_2 \]
\[ v = \frac{c}{n} \quad i = \alpha \left( \frac{n_a}{n_w} \right) \quad \frac{1}{f} = \frac{1}{o} + \frac{1}{i} \quad m = \frac{h_v}{h_o} = -\frac{i}{o} \quad m = -\frac{f_o}{f_e} \]