Reading Assignment for March 4
Section 24.4

24.4 - Calculating the Magnetic Field Due to a Current

- This section has all the equations in it. Unfortunately, they can't really be derived for you since that requires calculus.
- All of the equations contain a new constant in them: μ_0. This is the permeability constant.
- The value of μ_0 is weird. $\mu_0 = 4\pi \times 10^{-7}\, T \cdot m/A = 1.257 \times 10^{-6}\, T \cdot m/A$.
- Long straight wire: $B = \dfrac{\mu_0 I}{2\pi r} = \dfrac{2 \times 10^{-7} I}{r}$
- Current loop at its center: $B = \dfrac{\mu_0 I}{2R}$
- Anywhere inside a solenoid: $B = \mu_0 I \dfrac{N}{L}$

The Quiz is at: www.masteringphysics.com/site/login.html