Reading Assignment for September 6 Section 3.1 and 3.4

3.1 - Using vectors

- A vector has magnitude and direction. The magnitude of a vector is the positive number associated with the vector that gives the "amount" of that quantity.
- Two vectors are equal only if the have the same magnitude and direction.
- Vector addition - finding the net result of two or more vectors that take their direction into account. Vector addition is a *big deal*!
- Graphical addition - putting two vectors tip-to-tail.
- Multiplying by a scalar changes the magnitude but not the direction of a vector. One exception - negative scalars also flip the direction by 180°.
- Vector Subtraction - Either follow the procedure in the Tactics Box or simply learn that $\vec{\mathbf{A}} - \vec{\mathbf{B}}$ points from $\vec{\mathbf{B}}$ to $\vec{\mathbf{A}}$ when the vectors start at the same place.

3.4 - Motion in Two Dimension

- I'm going to introduce this much earlier than the book does.
- Again the textbook is being careful after the fact. $\vec{\mathbf{v}} = \dfrac{\vec{\mathbf{d}}}{\Delta t} = \dfrac{\overrightarrow{\Delta \mathbf{r}}}{\Delta t}$ should be labeled as the average velocity.
- The *Average Velocity* vector points in the direction of the displacement.
- The acceleration definition, $\vec{\mathbf{a}} = \dfrac{\Delta \vec{\mathbf{v}}}{\Delta t}$, is fine if you're doing constant acceleration motion.
- An object is accelerating if it changes speed *or* direction.
- Notice Example 3. 7, this will come back to haunt us.