

PHYSICS 151 READING

ASSIGNMENT FOR SEPTEMBER 7

SECTIONS 3.1 TO 3.2

Please notice that this file is two pages long.

3.1 - Using vectors

- Vector has magnitude and direction. The magnitude of a vector is the positive number associated with the vector and gives the "amount".
- Two vectors are equal only if they have the same magnitude and direction
- Vector addition - finding the net result of two or more vectors that take their direction into account
- 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 $\vec{\mathbf{A}}$

3.2 - Using Vectors on Motion Diagrams

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