

Monday, October 5/13
Physics 112/111

Midterm - Tentatively: Wed., Nov. 20

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1. Quiz-> Unit 1: Section 1 -> Return Rewrites
 2. Check -> Worksheet: Objects in Free Fall #5-8
Worksheet: More Freely Falling Bodies
 3. Quiz: Unit 1 - Section 2 - Mathematical Analysis

Date: -----Wednesday, Oct. 9

- Topics -> See Next Page

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4. Unit 2 - Dynamics: Section 1 - Introduction to Forces



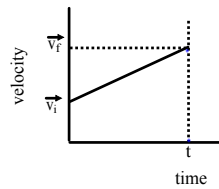
Quiz Topics for Unit 1 - Section 2 - Mathematical Analysis

- uniform motion: constant velocity (constant speed in one direction)

$$\vec{v} = \frac{\vec{d}}{t}$$

- uniformly accelerated motion: changing speed and/or direction

Velocity vs. Time



slope $\left\{ \begin{array}{l} \vec{a} = \frac{\vec{v}_f - \vec{v}_i}{t} \quad \text{or} \quad \vec{v}_f = \vec{v}_i + \vec{a}t \end{array} \right.$

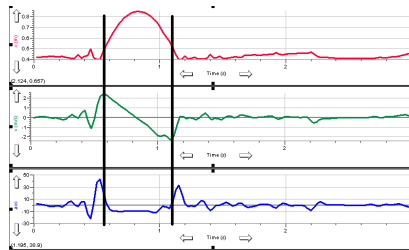
area $\left\{ \begin{array}{l} \vec{d} = \frac{1}{2}(\vec{v}_i + \vec{v}_f)t \end{array} \right.$

derived $\left\{ \begin{array}{l} \vec{d} = \vec{v}_i t + \frac{1}{2} \vec{a} t^2 \\ \vec{v}_f^2 = \vec{v}_i^2 + 2\vec{a}\vec{d} \end{array} \right.$

* Level 1 - Be able to derive the last two equations given the first two equations.

- relationship between the directions of velocity and acceleration for objects speeding up or slowing down

- be able to pull interpret the "Ball Toss" graphs



- acceleration due to gravity is influenced by a planet's mass and distance from the planet's center.

* $\vec{g}_{\text{Earth}} = -9.80 \text{ m/s}^2$ if no location is specified

- freely falling bodies -> objects moving vertically up or down
-> $\vec{a} = -9.80 \text{ m/s}^2$ (when air resistance is ignored)

- objects that are dropped may have a \vec{v}_i that is zero, positive or negative