Wednesday, October 15/14
Physics 112/111

Progress Reports - Oct.17

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1. Return Rewrites - Q: U1-S1

2. Formative Assessment - Motion Problem - P3 (Self-Assess)

3. Questions? -> Worksheet: Chapter 3 - Motion Problems
                        Worksheets: Freely Falling Bodies

4. ICA: U1-S2 (Motion Problems) - Friday, Oct. 17/14
                                            - Topics

5. Test: Unit 1 -> Wed., Oct. 22
                 -> Topics

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6. Unit 2 - Dynamics

Formative Assessment - Motion Problem

A tourist throws a rock downward with an initial speed of 8.0 m/s.

a) What is the velocity of the rock after 4.0 s?
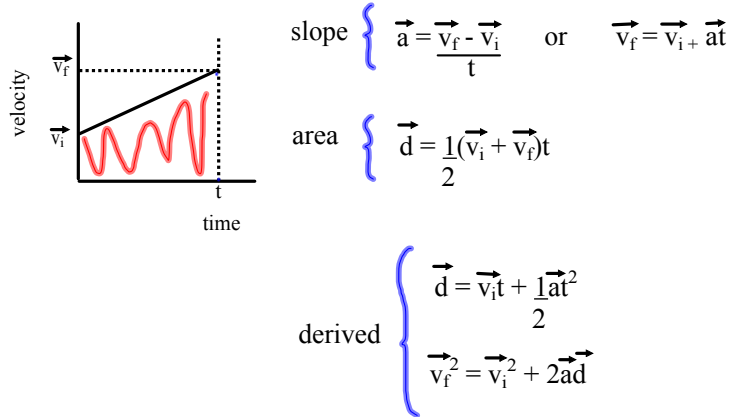b) What is the displacement of the rock after 4.0 s?

ICA Topics for Unit 1 - Section 2 - Mathematical Analysis

- <u>uniform motion</u>: constant velocity (constant speed in one direction)

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

- <u>uniformly accelerated motion</u>: changing speed and/or direction

<u>Velocity vs. Time</u>

slope $\left\{ \quad \vec{a} = \dfrac{\vec{v}_f - \vec{v}_i}{t} \quad \text{or} \quad \vec{v}_f = \vec{v}_i + \vec{a}t \right.$

area $\left\{ \quad \vec{d} = \dfrac{1}{2}(\vec{v}_i + \vec{v}_f)t \right.$

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

* <u>Level 1</u> - 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 interpret the "Ball Toss" graphs
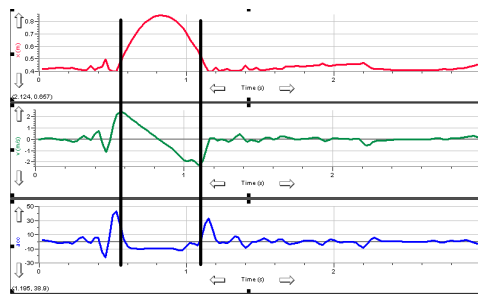
- acceleration due to gravity is influenced by a planet's mass and
distance from the planet's center.

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

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

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