## Proposed Problem

pg 70 #33

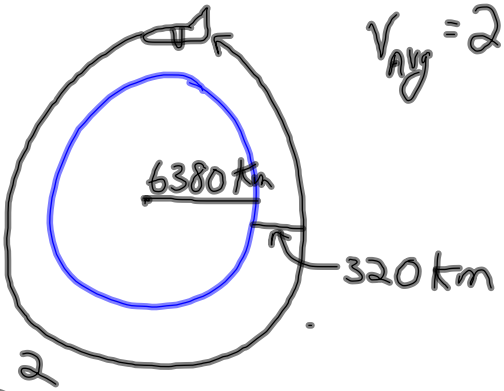
- Create Useful description - sketch, graphs, define quantities, define problem
- Physics Approach - list physics concepts that would apply to this problem
- Specific Application of Physics - use the concepts to model mathematically model the problem
- Mathematical Procedures - use the equations to solve the problem

Aug 5-9:52 AM

## Physics Problem Solving Sheet

Useful Description

Picture & Given Information:




$v_{Avg} = 27,800 \frac{km}{h}$

$\Delta x = C = 2\pi r^2$

$= 2\pi(6700\ km)^2$

$\Delta x = 305250000\ km$

Question:

Target Quantiy: $\Delta x$

Jul 26-9:35 PM

# Physics Problem Solving Sheet (cont.)

Physics Approach

Physics Concepts and/or Principles:

const vel.

Specific Application of Physics

Assumptions/ Constraints:

Specific Equations:

$$v = \frac{\Delta x}{\Delta t}$$

Mathematical Procedures

Employ specific equations to solve for target quantity.

$$\Delta t = \frac{\Delta x}{v} = \frac{30{,}525{,}000\ \text{km}}{27{,}800\ \frac{\text{km}}{\text{h}}} = 1098\text{h}$$

Jul 26-9:49 PM

(34) a) 0.20 s

b) 0.06 s

c) starts out with a steep slope & as it reaches 0.2 s it's slope approaches 0.

d) $-10\ \frac{m}{s^2}$

$$\Delta y = v_i t - \frac{1}{2} a t^2$$

$$0.2\text{m} = 0(0.2\text{s}) - \frac{1}{2} a (0.2\text{s})^2$$

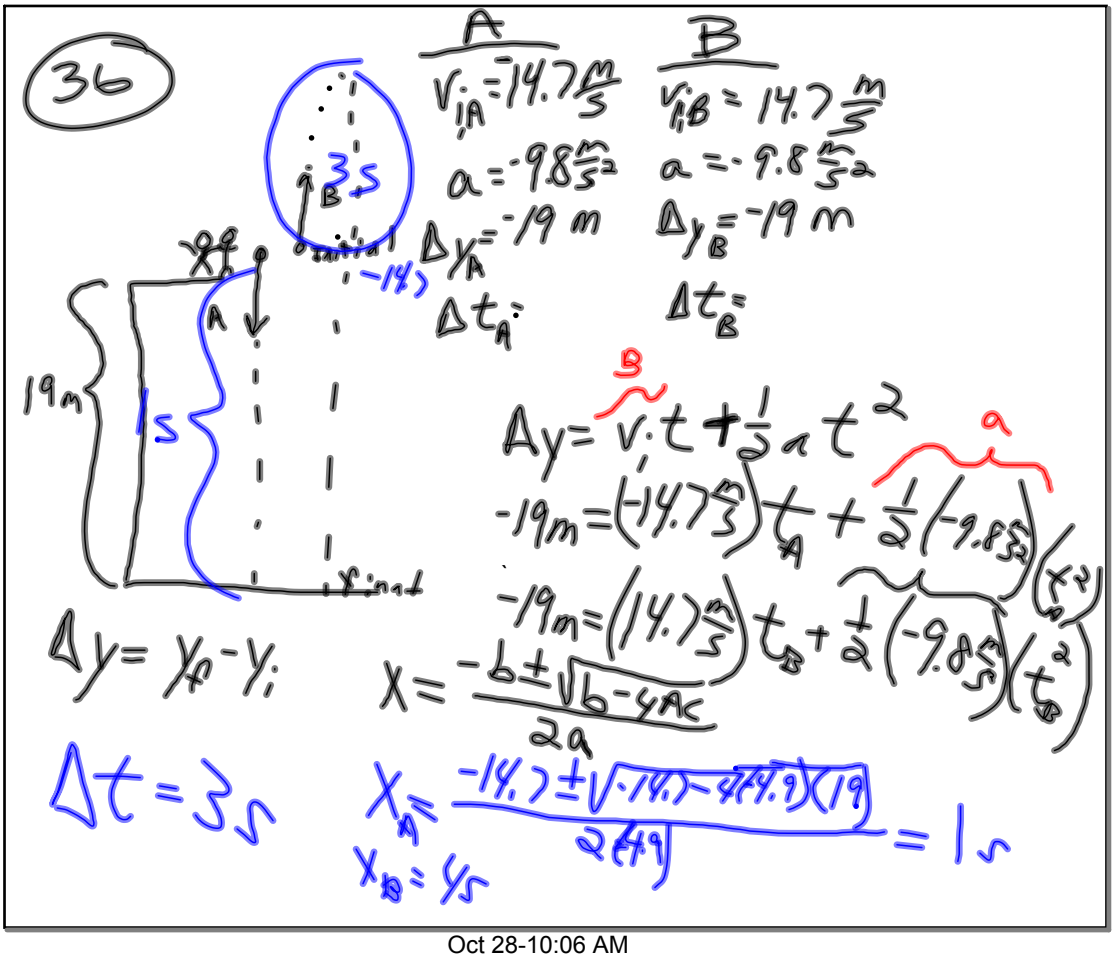
$$0.2\text{m} = -\frac{1}{2} a (0.2\text{s})^2$$

$$0.2\text{m} = (-0.02\text{s}^2)\, a$$

$$\frac{0.2\text{m}}{-0.02\text{s}^2} = a$$

$$a = -10\ \frac{m}{s^2}$$

Oct 28-9:58 PM




Oct 28-10:06 AM

$\Delta y_A = v_f t_A - \frac{1}{2} a t_A^2$

$-19\ m = v_f (1\ s) - \frac{1}{2}\left(-9.8 \frac{m}{s^2}\right)(1\ s)^2$

$-19\ m = v_f (1\ s) + 4.9\ m$

$-23.9\ m = (1\ s)\, v_f$

$-23.9 \frac{m}{s} = v_f$

Oct 28-10:26 AM

$t_A = t_B = 0.85$

$\Delta y_A = v_{i,A} t_A + \frac{1}{2} a t_A^2$

$= (-14.7)(0.85) + \frac{1}{2}(-9.8)(0.85)^2$

$\Delta y_B = (14.7)(0.85) + \frac{1}{2}(-9.8)(0.85)^2$

$\Delta y_{A,B} = 23.6\ m$

Oct 28-10:30 AM