Proposed Problem

3. It's a sunny Sunday afternoon, about 65 °F, and you are walking around Lake Calhoun enjoying the last of the autumn color. The sidewalk is crowded with runners and walkers. You notice a runner approaching you wearing a tee-shirt with writing on it. You read the first two lines, but are unable to read the third and final line before he passes. You wonder, "Hmm, if he continues around the lake, I bet I'll see him again, but I should anticipate the time when we'll pass again." You look at your watch and it is 3:07 p.m. You recall the lake is 3.4 miles in circumference. You estimate your walking speed at 3 miles per hour and the runner's speed to be about 7 miles per hour.

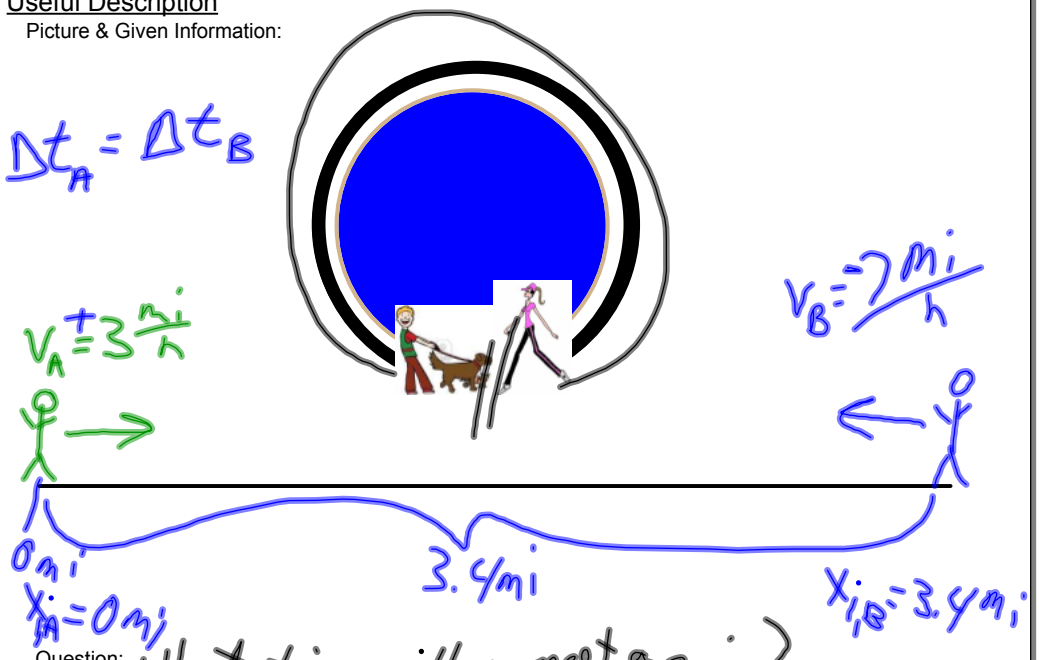
- Create Useful description - sketch, graphs, define quantities, define problem
- Physics Approach - list physics concepts that would apply to this problem
- Specific Application of Physics - use the concepts to model mathematically model the problem
- Mathematical Procedures - use the equations to solve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

Aug 5-9:52 AM

Physics Problem Solving Sheet

Useful Description

Picture & Given Information:



Question: What time will we meet again?

t_f

Target Quantiy:

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.

$\Delta t = \frac{\Delta X}{V}$ (not useful)

$X_f = Vt + X_i$

$X_{f,A} = \left(3\frac{mi}{h}\right)t + 0mi$

$X_{f,B} = \left(7\frac{mi}{h}\right)t + 3.4mi$ — Calculator

Jul 26-9:49 PM

$\left(3\frac{mi}{h}\right)t = \left(7\frac{mi}{h}\right)t + 3.4mi$

$\left(10\frac{mi}{h}\right)t = 3.4mi$

$t = .34h \cong 20.4min$

∴ you meet @ 3:27 PM

Oct 19-10:49 AM