

Related Rates Matching Lab

Purpose: To help students focus on first finding the general equation to be used on a problem and then differentiating that general equation using both the chain rule and implicit differentiation. The lab consists of 7 problems that are matched by the students and completed before every trying to actually solve the problem with the givens.

Materials:

- Lab handouts for groups of three
- Scissors
- Lab recording sheet
- Paper and pencil

Part 1: The first part of the lab is to cut out the cards and work to match each of the 7 problems with the appropriate cards. After this is completed, the student should record their findings in the recording sheet and move onto part 2 of the lab

Part 2: this part of the lab can be finished for homework if not completed in class and is meant to give the students practice in solving problems when they have the problem differentiated in the general form. Students must first record what variable the question is asking for and then list all initial givens to the problems (all variable except 1). Finally, the student must solve for the unknown in question.

Related Rates Lab Sheet

Names: _____

Class: _____

Date: _____

Part 1:

Complete the table to record your matches.

<i>Word Problem</i>	<i>General Equation</i>	<i>Chain Rule</i>
A1		
A2		
A3		
A4		
A5		
A6		
A7		

Part 2:

Please the following on a separate sheet of paper for each of the 7 problems

a) *Determine the unknown in question (ex. $\frac{dV}{dt}$)*

b) *List all givens to the problem (ex. $x = 2$, $\frac{dz}{dt} = 3$, ...)*

(Hint: if a value is a constant then its rate of change is 0)

c) *Solve the problem (also state what solution means)*