

Math Xb Spring 2005

Applications of Trig Derivatives: Related Rates

March 11, 2005

1 Related Rates Problem Solving Strategy

You may want to use the following strategy to solve related rates problems, whether they or not they involve trigonometric functions.

1. Read the problem and draw a picture.
2. Name the variables. These are the quantities that are changing.
3. Write down the rates of change that you know and the rates of change that you want to know.
4. Write down an equation that relates the variables from Step 2. You may (or may not) want to try to simplify the equation if it contains more than two variables.
5. Implicitly differentiate the equation with respect to the appropriate variable (usually time).
6. Substitute the quantities you know into the equation from Step 5.
7. Solve for any unknown variables. If there's more than one variable left in the equation from Step 6 you may have to use other information to eliminate a variable.
8. Write down the final answer. Check: does your answer make sense?