**Colorado Technical University**

**Course:** MATH205 – Differential Calculus

#### Unit 6 Part 12 Readings – Related Rates

**Related Rates**

In functions, changing one variable’s value changes the value of another variable that depends

on it

Problems including variables whose rates of change are related and can be modeled by an

equation are called **related rates problems**

One or more rates are given, and other rates are to be calculated using the equation

This can be done for any combination of variables in the model

Any others are considered to be constants

How to solve them:

1) Draw a picture

2) What are you trying to find?

3) Find an equation relating the variables

4) Find dy/dx (usually chain rule)

5) Plug in known values

6) Solve for the rate of change

**2-D vs 3-D**

If you take the derivative of a 3-dimensional thing, you get a 2-dimensional thing

If you take the derivative of a 2-D thing, you get a 1-D thing

Diagram

Description automatically generatedIf you integrate a 2-D thing, you get a 3-D thing!