

Topic #1: Introduction to Functions

Objectives

- Define *function*
 - Determine if a situation represents a functional relationship
 - Identify independent and dependent variables
 - Identify the domain & range of a function given a formula or graph
 - Express functions using (1) words, (2) graphs, (3) tables, and (4) formulas with appropriate notation
 - Evaluate functions
 - Explain why the VLT determines if a graph represents a function
 - Identify the graphs of elementary functions
 - Describe the behavior of graphs using correct terminology
 - Calculate the average rate of change of a function over a set interval
 - Solve basic equations analytically and graphically
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1) Introduce yourself to another student in the class. Record the following information for that other student.

First name: _____

Hometown: _____

Intended major: _____

Which zoo animal is the coolest? _____

On a scale from 1 (hate it) to 10 (love it), the student's feelings towards math: _____

A movie, tv show, video game, book, or activity the student is embarrassed to admit enjoying: _____

2) We'll have you introduce that student to the rest of the class by sharing the above information. On the board, we'll record some of this data. Then, we'll review the syllabus and figure out what we're going to learn in this class.

3) Over the next 2 days, humans will generate more information than we did from the dawn of civilization until 2003.* Think about all the information you've already generated at St. Ambrose...

- demographic data (name, gender, race, age, address, phone number, email address, student ID)
- achievement data (ACT scores, high school GPA, course grades)
- enrollment data (the courses you're taking, your major, housing information)
- financial data (financial aid, scholarships, things you buy with your ID card)
- attitudes/affective data (responses to the MAP-Works or other surveys)

Combine that with all the other data you generated just today (email or text messages you sent, websites you visited, photos/videos you created/uploaded, items you bought) and you can see that we're generating lots of data that could be used for all sorts of purposes.

Most of you, after graduating, will go on to careers or graduate programs that will require you to have the skills to store, access, analyze, and understand data to make decisions.

In this class, we will learn how to use *elementary functions* to construct *mathematical models* - mathematical representations of data - to gain insight and solve problems.

* <http://techcrunch.com/2010/08/04/schmidt-data/>