

Lab 01

Calculus I

12 September 2022, College of the Atlantic

- Please work in groups of two or three
- Please write your answers on this sheet, make a scan of it as a pdf, and upload it google classroom at the end of lab. Use “genius scan” or some similar scanning app. This assignment is not graded.

Names: _____

Part I: Functions that are not linear

x	$f(x)$
1	2
2	4
3	8
4	16
5	32

1. A table of values for a function is shown above.
 - (a) How can you tell¹ that the function is not linear?
 - (b) What is $f(6)$? What is $f(0)$?
 - (c) Write down a formula for the function.
 - (d) What is the name of this type of function?

x	$f(x)$
1	12.432
2	17.405
3	24.367
4	34.113
5	47.759

2. The table of values for another function is shown above.
 - (a) What type of function is this? How can you tell?
 - (b) What is $g(6)$? What is $g(0)$? What is $g(20)$?
 - (c) Write down the formula for this function.

¹Aside from the fact that the name of this part of the lab is “functions that are not linear”.

Part II: Thinking about your Field Guide to Functions

During the first few weeks of the term you will complete a field guide to functions. Some thoughts/guidelines:

- Work in pairs or, at most, groups of three.
 - Should include the “basic” functions we’ll cover in the first part of the course, including linear functions, exponentials, sines and cosines, logarithms, power functions.
 - Include something about ways to distinguish between similar-looking functions: e.g. exponentials and parabolas.
 - Describe all (or most) functions using the rule of four: graphs, equations, words, and tables of values.
 - Does not have to be a traditional field guide. Almost any format is fine. Zines, comics, ...
 - Have fun! Be creative, artistic, poetic, etc.
 - Don’t worry too much about having a polished final product. A DIY vibe is fine.
 - Aim to spend around two hours a week outside of class and lab on this assignment.
1. Take a look at some of the field guides in the lab, and/or look at some field guides online. In your opinion/experience, what are some features that make a field guide useful or interesting?
 2. What are some initial thoughts about what you might want to do with your field guide. What media do you want to work in? What structure(s) are you thinking of?
 3. Do you anticipate needing any supplies for your field guide? Paper, colored pencils, glitter, etc.?

The group you do your field guide with does not have to be the same as the group you’re working in right now. But it would be helpful to figure out your groupings soon, so you can start working early next week.