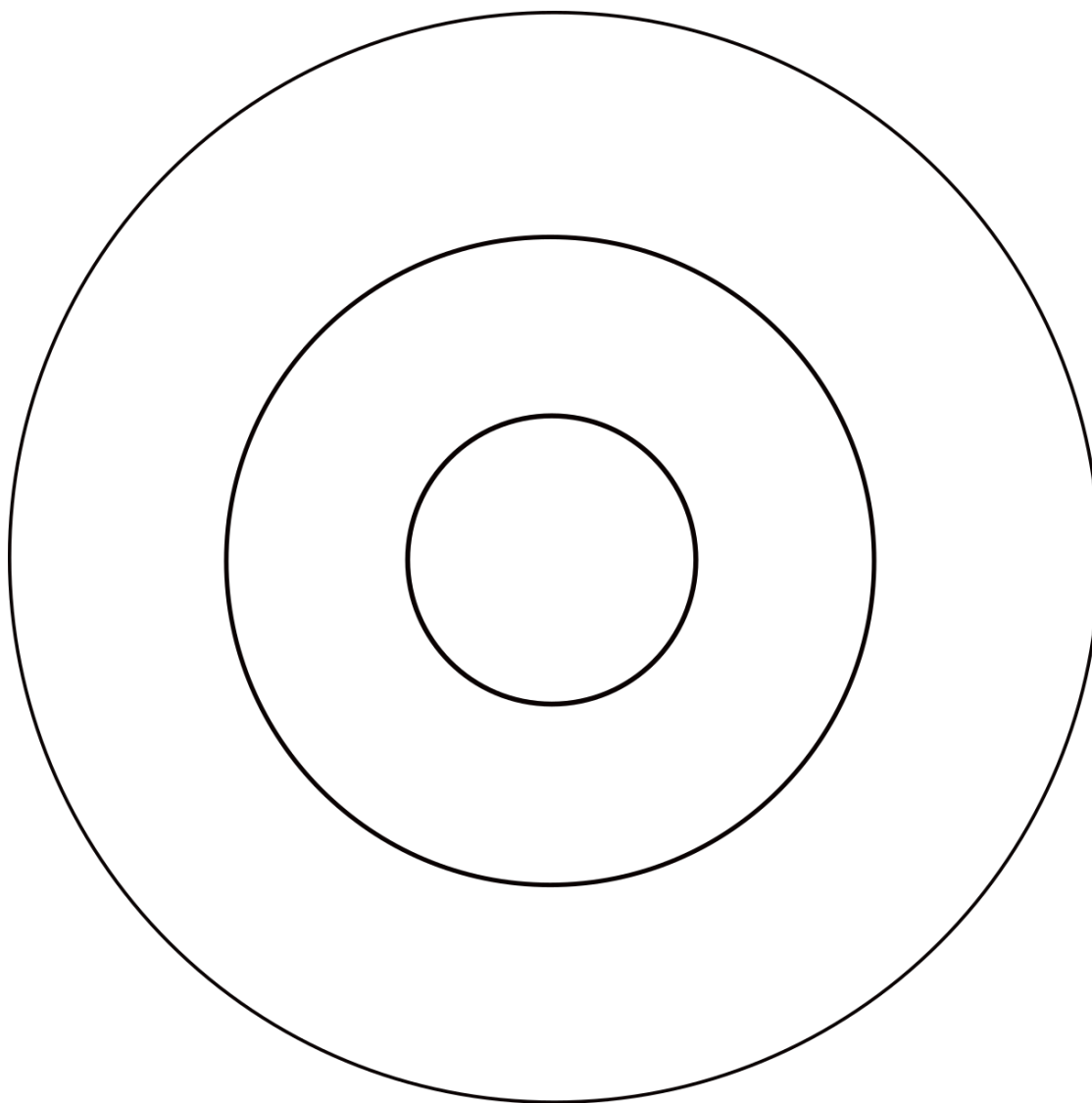# Lab 03
Calculus I

30 September 2024, 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. This assignment is not graded.

Names: _____

Part I: Slices of Pie

1. For each slice and sub-slice, measure the length of the edge of the slice and the length of the crust.
2. Calculate the ratio of the crust length to the side length (i.e. crust length divided by side length?) for each slice.
3. What is the meaning of this number?
4. Check in with me or one of the TAs before proceeding.

Part II: Some Graphing Puzzles

Make rough sketches of the following functions. Some will be dramatic, and some will be surprisingly dull. Check your graphs using wolframalpha or desmos, but be sure to try them without a computer first. These aren't easy. Be sure you understand why the functions have the shape they do.

1. $2^{\sin(x)}$

2. $\sin(2^x)$

3. $(\sin(x))^2$

4. $\sin(x^2)$

5. $x^2 \sin(x)$

Check with me or one of the TAs before proceeding.

Part III: Field Guide Work

- Target date for field guide completion: **Wednesday, October 9**.
- At this point you're in a position to make the field guide for linear, exponential, power, log, and trig functions. Be sure to discuss how to distinguish between functions that look similar.
- We'll talk about polynomials in class Thursday, and then that will be it for functions.
- For each type of function, include one or two scientific uses for that function. I.e., an equation from physics, chemistry, biology, etc., that's an exponential, a power function, and so on.
- Spend a chunk of time working today, and also aim to spend around an hour outside of class this week working on the field guide.