Math 1151 Workshop 0: Refresh and Tips

Mathematics and Statistics Learning Center (mslc.osu.edu/tutoring)

## Problem 1: Try on your own, write down any questions, then look for answers

Consider the following graph of a function :

A graph of a line drawn on a graph

Description automatically generated

1. What is the domain of the function ?
2. What is the range of the function ?
3. What is the -intercept of the graph?
4. What is ?
5. Solve the equation .
6. Is the function odd, even, or neither?
7. List the intervals where is increasing.
8. List the intervals where is decreasing.
9. Is the function invertible?
10. Give an interval where is one-to-one.

## Problem 2: Reflect on the problem after finishing: why did I ask it?

Draw a graph below of a function with the following properties.

1. The domain of is .
2. The range of is .
3. The -intercept of the graph of is .
4. is increasing on the interval .
5. is decreasing on the interval .
6. is one-to-one on the interval .

A graph of a cross-section of a graph

Description automatically generated

## Problem 3: Use previous parts of the problem to help

Determine the domain of the function . Recall that an expression is undefined if its denominator is 0, it has a negative underneath an even root, or the argument of a logarithm is non-positive.

## Problem 4: Use Desmos to find the answers and then work in groups to justify your answers without graphing

Evaluate the following:

Are any of the results surprising? Can you explain them? Explanation is a key skill we want you to learn in Calc 1.

## Problem 5: Explain what you found to a partner and come to an agreement

Recall the following logarithm rules:

Combine the following logarithms into one logarithm with coefficient 1.

Expand the following logarithm as much as possible. Try to have the inputs to the logarithms be as simple as possible.