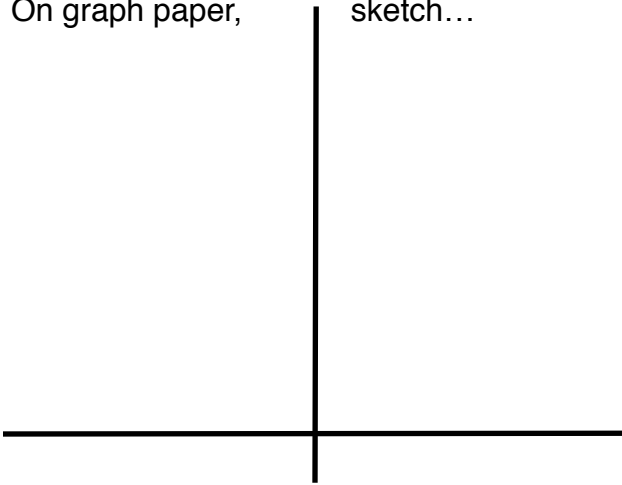# UNIT 5: EXPONENTIAL AND LOGARITHMIC FUNCTIONS

## DAY 1: Exponential Functions

Defines an exponential function with a base "a" where a > 0, and a ∈ R.
- An exponential function is one in which the variable is in the exponent.
- i.e.

On graph paper,     sketch…               using a table of values.

Properties:

1. Domain:

2. Range:

3. Fxn:

4. X-intercepts:
   Y-intercepts:

5. Increasing/Decreasing Direction:

6. Continuous:

Now on the same axis, sketch….
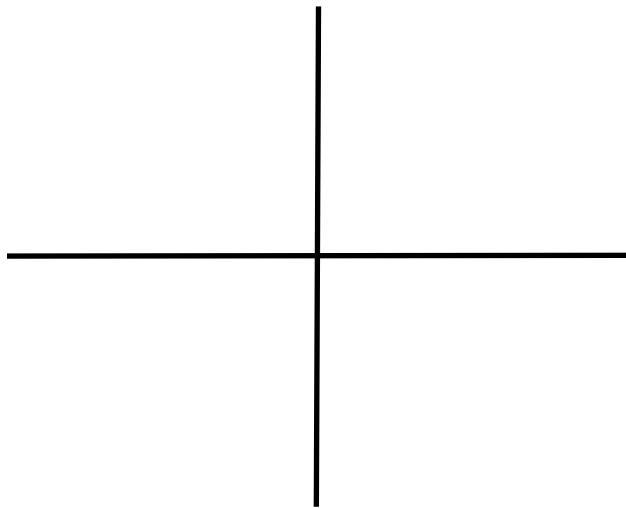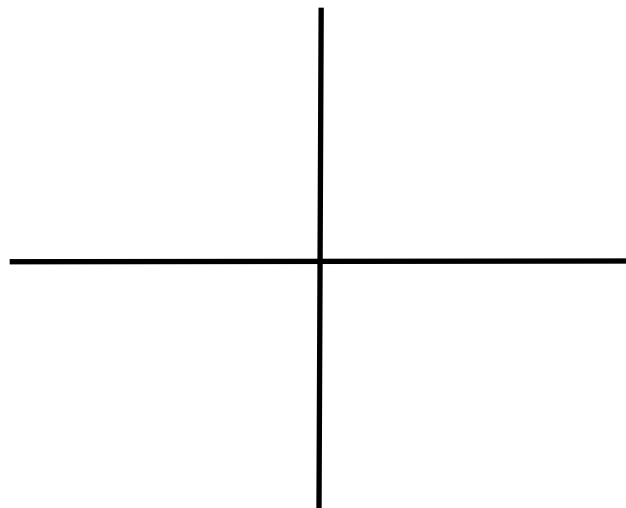
What do you notice?

In general:

Negative values for          is undefined for certain values of x.

| **DAY 2: Logarithmic Functions** |
| --- |

The logarithmic function is the inverse of the exponential function.
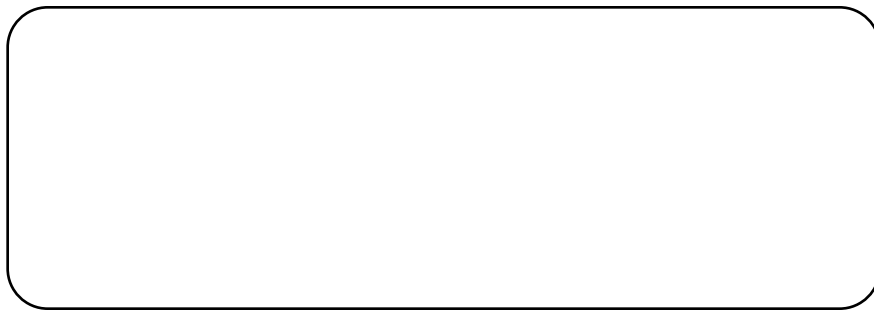
Recall: To obtain the inverse,
reflect on the y = x line.

Exponential function:

Inverse function (log) - switch x and y:
- Now isolate "y".  The only way to express this as y = ___ is to use **logs.**

"log of x to the base of a"

This means the exponent of x when expressed as a power of a, is y.

**Ex. 1)** Express as a log.

1.

2.

3.

Express as exponents:

1.


2.


3.



**Trick for evaluating:**
When you have the same bases in both places (base and anti-log), the answer is the exponent.


**Ex. 2)** Evaluate.

A)                          b)                          c)                          d)



**Ex. 3)** Evaluate by changing to exponential notation (equation method).  Solve for x or y.

**A)**                          b)                          c)



D)                          e)                          f)

**G)**

**HOMEWORK:** pg. 338 #4,6,7