**Module 4 Lesson 7: Log & LN Function**



**Learning Targets**

I can draw the graphs of the exponential function and logarithmic function and describe the connection between them.

I can write the domain and range for both a log function and the exponential function and understand the relation between the two functions.

I can convert between and and understand the restrictions on the bases and domains.

I can find the equation of the inverse of a logarithmic function.

**Writing an Exponential Equation in Logarithmic form.**

**Logarithmic Form**

**Exponential Form**

For

Examples:

1. If , write the equation for

(remember: inverse…switch x & y and solve for y)

1. If , write the equation for

**Evaluating a Logarithm**

Example Steps

Solve for x. Round answers to the nearest tenth if needed.

1.  2.  3.  4. 

5. 6. 7. 8.

 Memorize

 These!

|  |  |
| --- | --- |
| Exponent Properties | Logarithmic Properties |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

From these properties we can expand and condense logarithmic expressions to help in solving future problems.

Note: and

 is the natural number

**Expanding Logarithms**

What is each logarithm expanded?

1. 2.

3. 4.

5. 6.

**Simplifying (Condensing) Logarithms**

1. 2.

3. 4.

5.