Math 3 **3.2 Graphing Exponentials and Logs** Unit 3

*EQ: How do you graph exponential and logarithmic functions as inverses on the coordinate plane?*

**Example 1:** Find the inverse of the following. Remember, swap x and y, and solve for y again!

1. y = log5x
2. y = log7x - 1
3. y = log3(x-2)
4. y = log4(x + 3) – 8

|  |  |
| --- | --- |
| **Exponential Function** | **Logarithmic Function** |
| A function whose unknown (x) is located in the exponent | The inverse function of an exponential function. |
| **Transformations:** y = a∙bx-h + k  | **Transformations:** y = a∙logb(x-h)+k |
| **Asymptote:** |  | **Asymptote:** |  |

**Example 2:** Graphing Exponential Functions and their Inverses

1. $f(x)= 2^{x+1}$ $f^{-1}(x)= $



Transformations:

Asymptote:

Domain:

Range:

1. $f(x)= -3^{x-1}+6$ $f^{-1}(x)= $



Transformations:

Asymptote:

Domain:

Range:



1. $f\left(x\right)= log\_{2}x-3$ $f^{-1}(x)= $



Transformations:

Asymptote:

Domain:

Range:



1. $f\left(x\right)= -log\_{4}\left(x+4\right)+2$ $f^{-1}(x)= $



Transformations:

Asymptote:

Domain:

Range: