Name _____ Date _____

Logarithmic Functions - Guided Lesson Explanation

Explanation #1

If $y = \log_b x$

Then $x = b^y$ **(where $x > 0$ and $b > 1$)**

Here, $b = 5$ $x = 125$ $y = 3$

Hence, the exponential statement of:

$3 = \log_5 125$ **is** $5^3 = 125$

Explanation #2

This is a basic logarithmic function and follows the format:

$f(x) = \log_a (x)$, $a > 1$

The range of such a function is infinite in both directions,

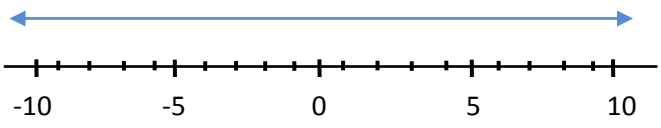
i.e. Range of f (x) = (-infinity, +infinity)

Given that:

$f(x) = \log_3 (x) + 6$

Here,

$a = 3$ **and hence** $a > 1$



So the range of $f(x) = \log_3 (x) + 6$ **is:**

R = All real numbers

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Explanation #3

If $y = \log_b x$

Then $x = b^y$ **(where $x > 0$ and $b > 1$)**

Given that:

$7 = \log_3 22$

Here, $b = 3$ $x = 22$ $y = 7$

Hence, the exponential form of:

$7 = \log_3 22$ **is** $3^7 = 22$