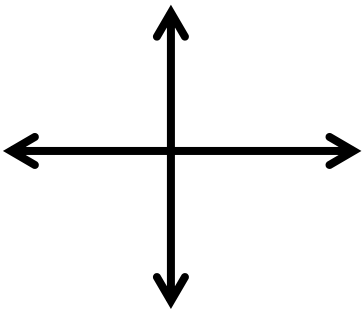
3.5 Exponential and Logarithmic Functions

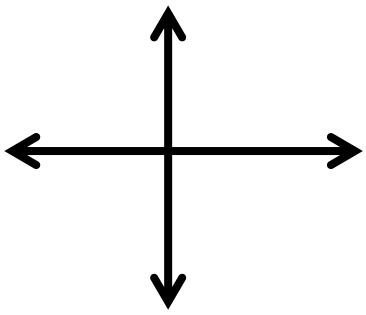
EQ: How do I graph exponential and logarithmic functions?

Exponential Parent Function



Key Points

Logarithmic Parent Function



Key Points

Equation		Type of Transformation	Change to key points
$y = b^x + a$	$y = \log_b x + a$		
$y = b^{x+a}$	$y = \log_b(x+a)$		
$y = -b^x$	$y = -\ln x$		
$y = b^{-x}$	$y = \ln(-x)$		

To find the domain of a logarithmic function:

Ex: Find the domain of $y = \log_3(-2x+6) + 3$

Examples:

$y = 4^x - 3$

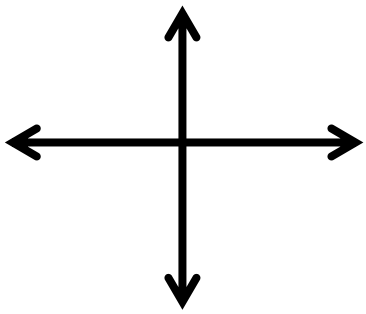
Original Points:

(0,1)

(1,4)

Y = 0

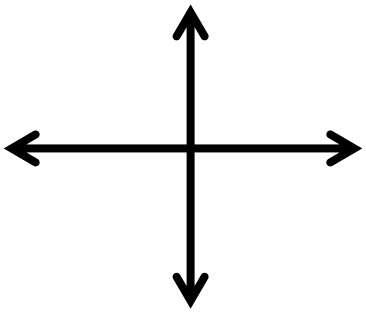
New Points:



$y = \log(x+4)$

Original Points:

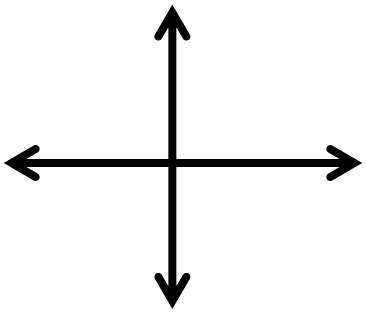
New Points:



$y = -5^x + 3$

Original Points:

New Points:



For $y = b^x$ if $0<b<1$, then your graph is:

ex. $y = \frac{1}{2}^x$