4-3 Graphing Exponentials

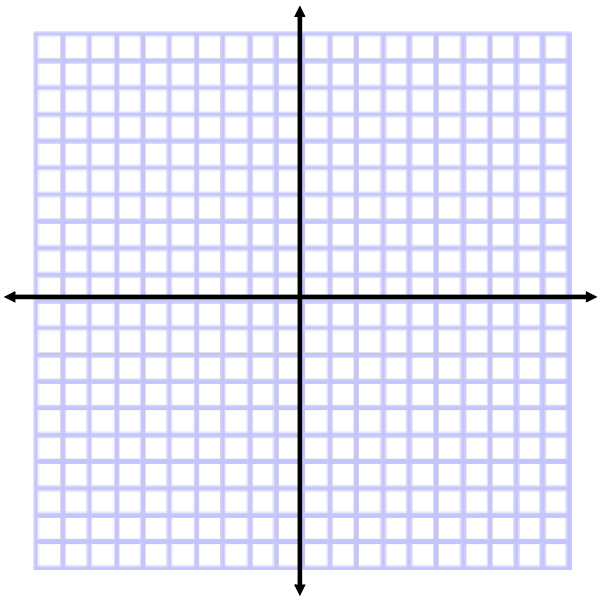
4-3a: I can graph exponential functions using transformations and points.

4-3b: I can identify the asymptote of an exponential function.

Jun 3-2:48 PM

Recall the graph of $f(x)=2^x$.

x	$f(x)=2^x$
-3	
-2	
-1	
0	
1	
2	
3	

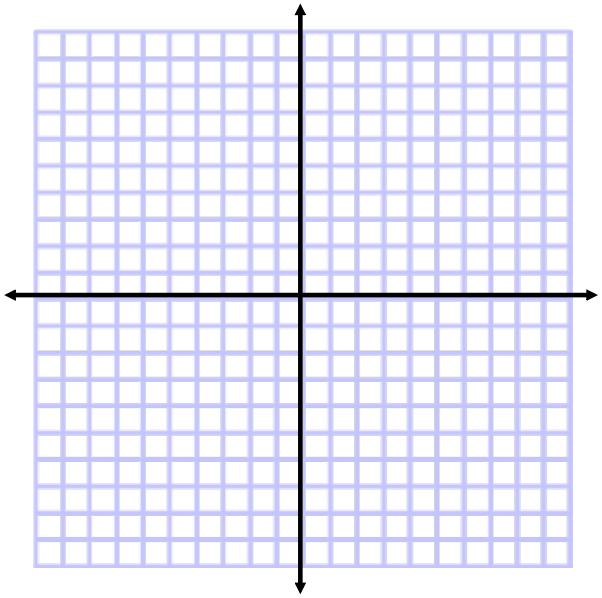


Vocab: Asymptote

Oct 26-7:05 AM

Now consider the graph of $f(x)=3^x$.

x	$f(x)=3^x$
-3	
-2	
-1	
0	
1	
2	
3	



What do you notice about the y-intercepts?
(when x = 0)

What happens when x = 1? *(If you can't see the pattern after 2^x and 3^x try looking at 4^x too.)*

Where is the asymptote for these graphs?

Key parts to all exponential parent graphs:

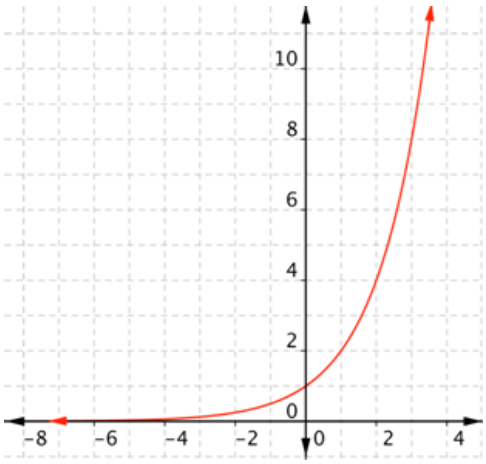
1) There is a point at (0,1).

2) There is a point at (1, base)

3) There is a horizontal asymptote at y = 0.

These pieces will change with the transformations.

State the domain, range, increasing, decreasing, asymptote, and end behavior.



Domain:

Range:

Increasing:

Decreasing:

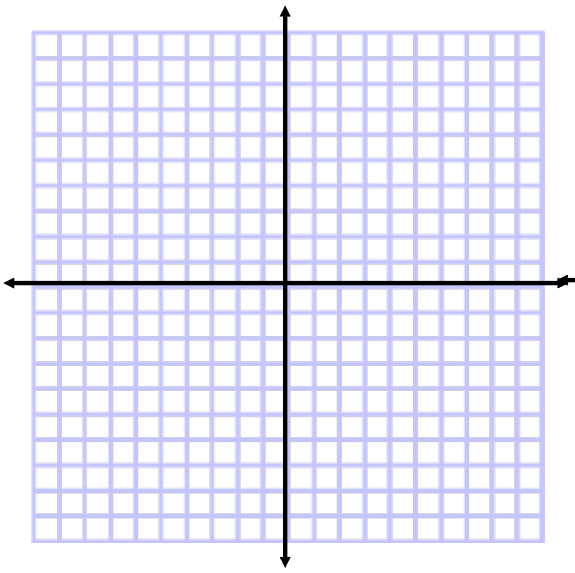
Asymptote:

End Behavior:

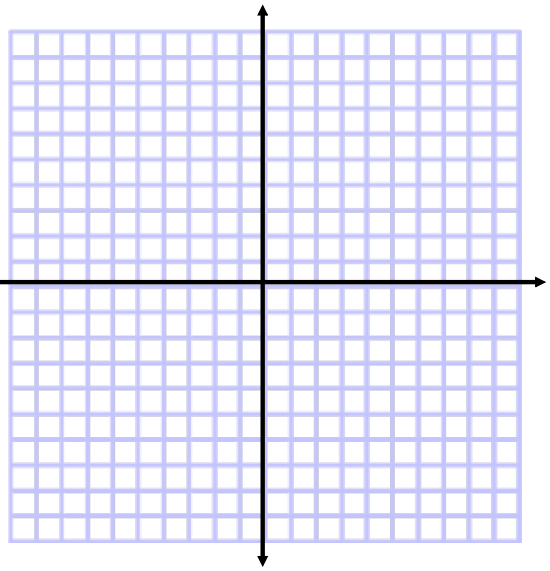
Dec 15-7:48 AM

Graph each function using transformations and points. Write the equation of the asymptote.

$f(x)=2^{x+3}$



$f(x)=2^{x}-4$

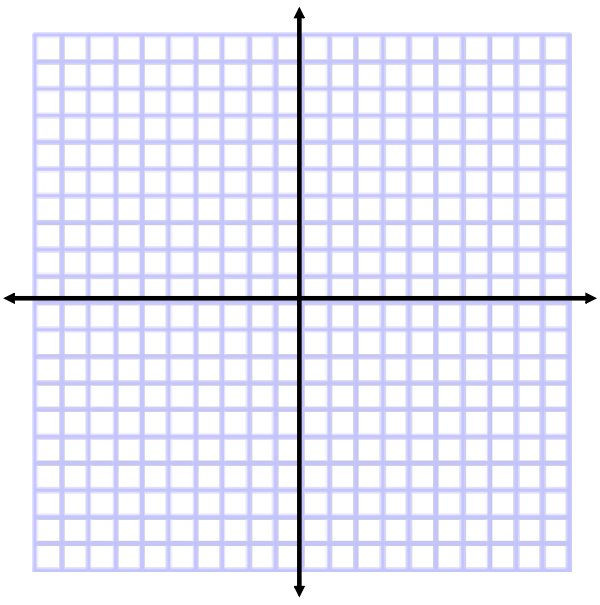


Dec 15-7:42 AM

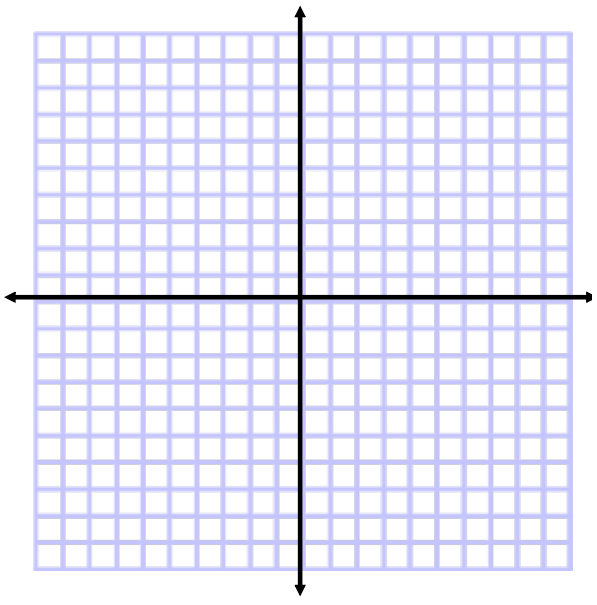
Graph each function using transformations and points. Write the equation of the asymptote.

You try!

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



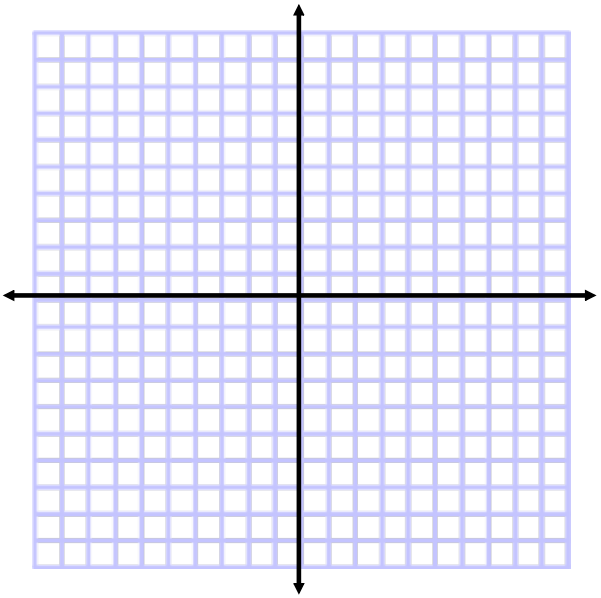
$f(x)=4^{x-2}-3$



Oct 26-7:12 AM

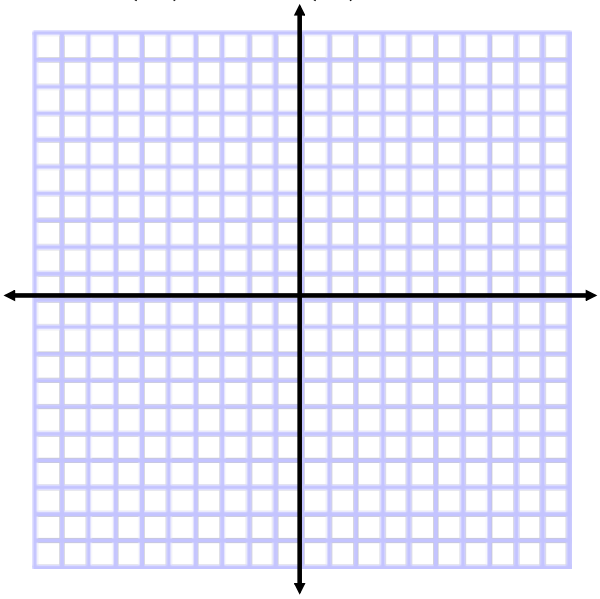
Graph each function using transformations and points. Write the equation of the asymptote.

$f(x) = 3(2)^x$



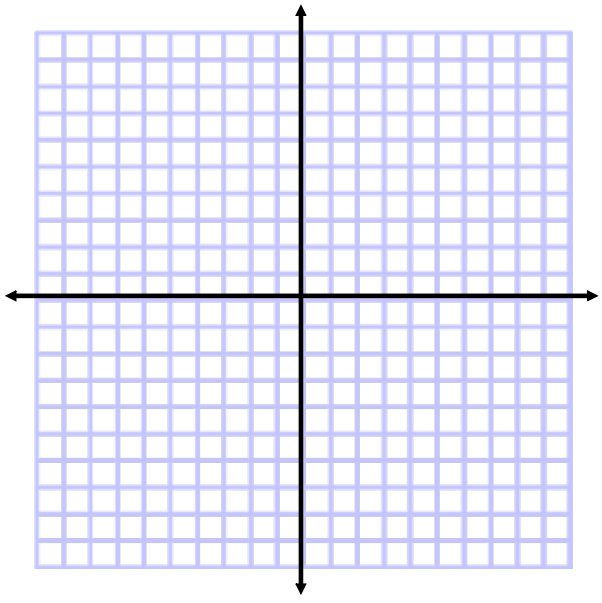
You try!

$f(x) = 2(4)^x - 3$

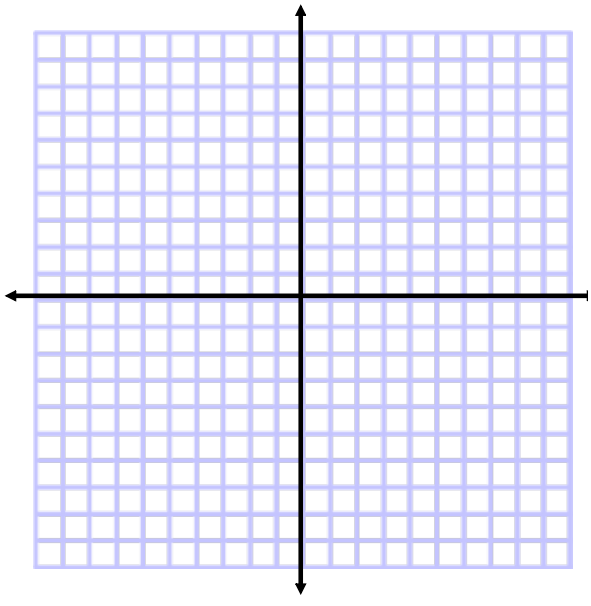


Graph each function using transformations and points. Write the equation of the asymptote.

$f(x) = -(2)^x$



$f(x) = -2(2)^{x+3} + 1$



Oct 26-7:18 AM