

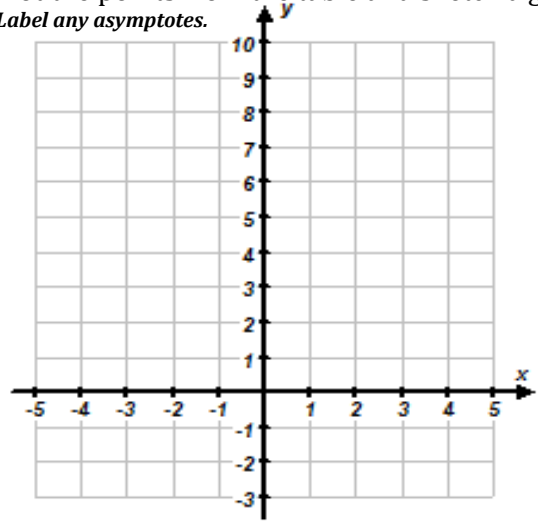
1. Consider the **exponential function**, $f(x) = 3^x$.

A. Fill in the missing values in the table below.

x	$f(x)$
2	
0	
	27
1	
-1	
-3	

C. Determine the **Domain** & **Range** of the function.

B. Plot the points from the table and sketch a graph
Label any asymptotes.



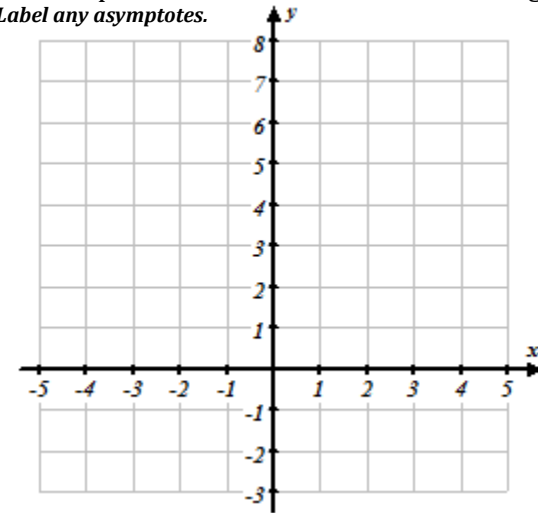
2. Consider the **exponential function**, $g(x) = 2^x - 2$.

A. Fill in the missing values in the table below.

x	$g(x)$
2	
3	
	0
0	
-1	
-3	

C. Determine the **Domain** & **Range** of the function.

B. Plot the points from the table and sketch a graph
Label any asymptotes.



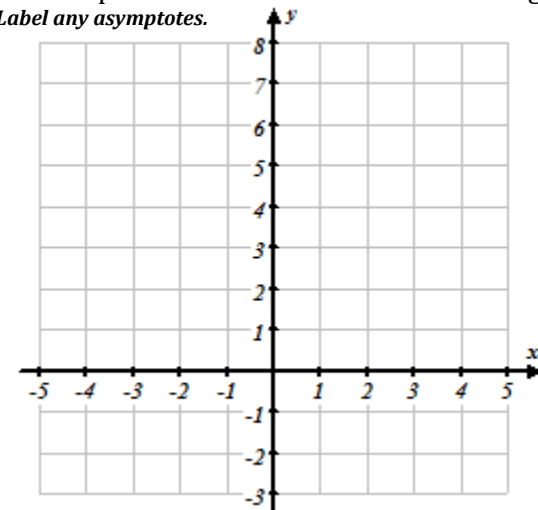
3. Consider the **exponential function**, $h(x) = \left(\frac{1}{2}\right)^x + 1$.

A. Fill in the missing values in the table below.

x	$h(x)$
-3	
-1	
0	
1	
2	
3	

C. Determine the **Domain** & **Range** of the function.

B. Plot the points from the table and sketch a graph
Label any asymptotes.

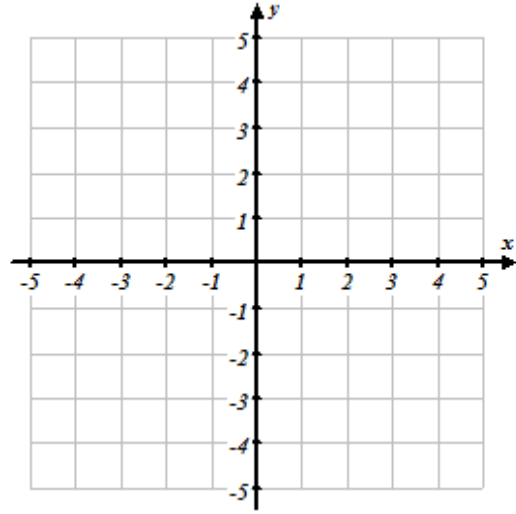
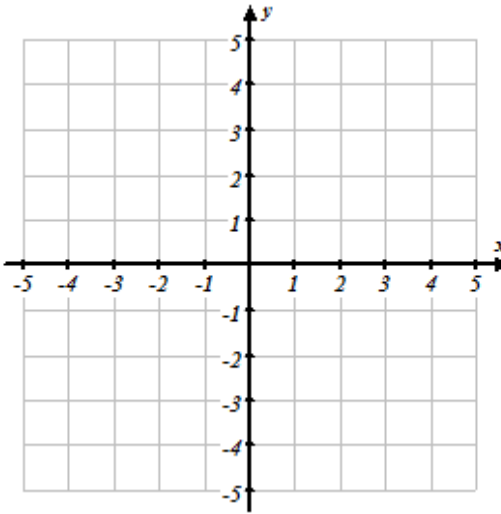
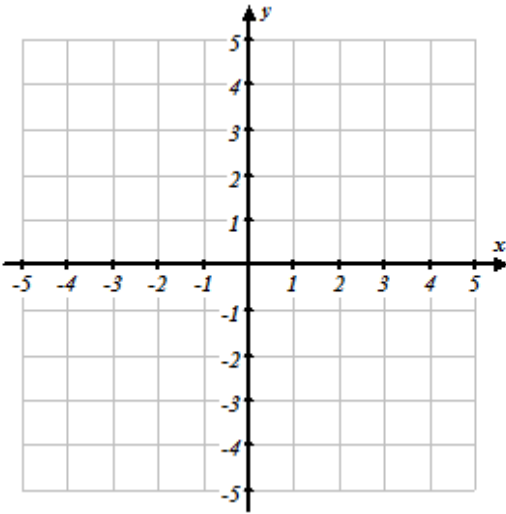


4. Determine the asymptote and sketch a graph (label the any intercepts, points when $x = 0$, and when $x = 1$.)

A. $f(x) = 3^x - 4$

B. $g(x) = \left(\frac{1}{2}\right)^x + 2$

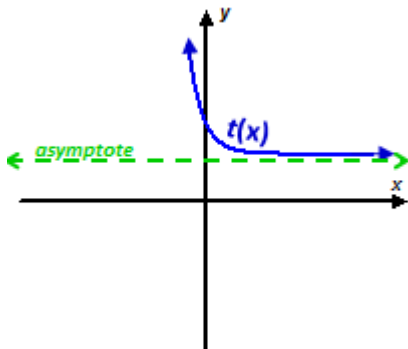
C. $h(x) = -2^x - 3$



5. Create two different exponential functions of the form $f(x) = a \cdot b^x + c$ that have a horizontal asymptote at $y = 5$.

6. Given the function $f(x)$ is of the form $f(x) = a \cdot b^x + c$, has a horizontal asymptote at $y = -1$, and passes through the point $(0,2)$, create a possible function for $f(x)$.

7. Consider $t(x)$ is of the form $t(x) = a^x + c$.



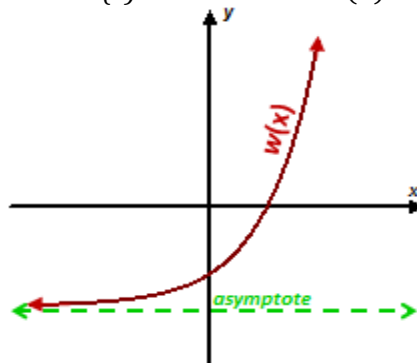
Which of the following must be true for the parameter 'a'?

$a > 1$ $0 < a < 1$ $a < 0$

Which of the following must be true for the parameter 'c'?

$c > 0$ $c = 0$ $c < 0$

8. Consider $w(x)$ is of the form $w(x) = a^x + c$.



Which of the following must be true for the parameter 'a'?

$a > 1$ $0 < a < 1$ $a < 0$

Which of the following must be true for the parameter 'c'?

$c > 0$ $c = 0$ $c < 0$

9. Determine the x-intercept and y-intercept of the following exponential functions:

a. $r(x) = 3 \cdot 2^x - 6$

b. $r(x) = -1 \cdot 3^x + 9$

10. The parent graph is shown in light gray on the graph. Graph the transformed function on the same Cartesian coordinate grid and describe the transformations based on the function $t(x)$.

a. Parent Function: $f(x) = 2^x$

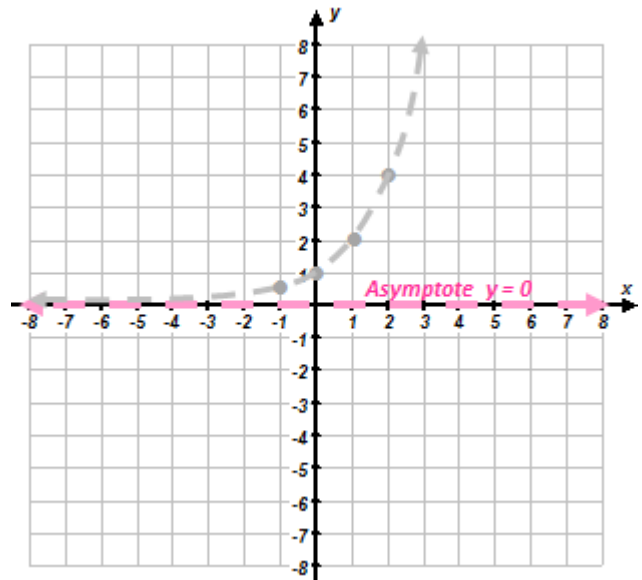
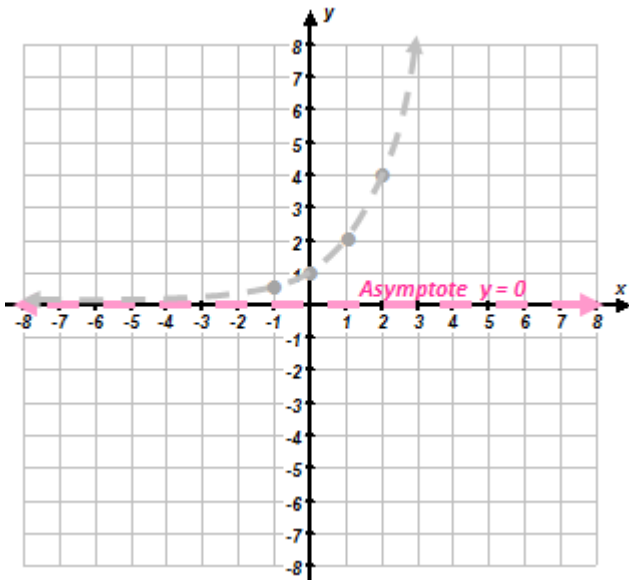
Transformed Function: $t(x) = 2^{(x-2)} - 6$

b. Parent Function: $f(x) = 2^x$

Transformed Function: $t(x) = 2 \cdot 2^{(x-4)}$

Determine the Domain & Range of the function.

Determine the Domain & Range of the function.



c. Parent Function: $f(x) = 3^x$

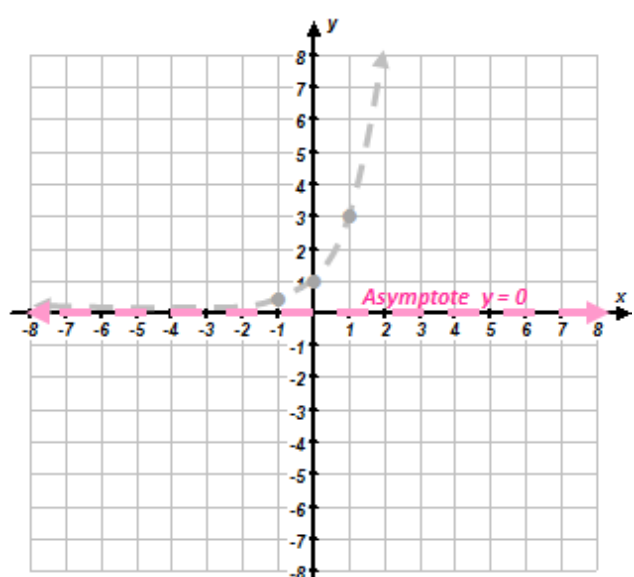
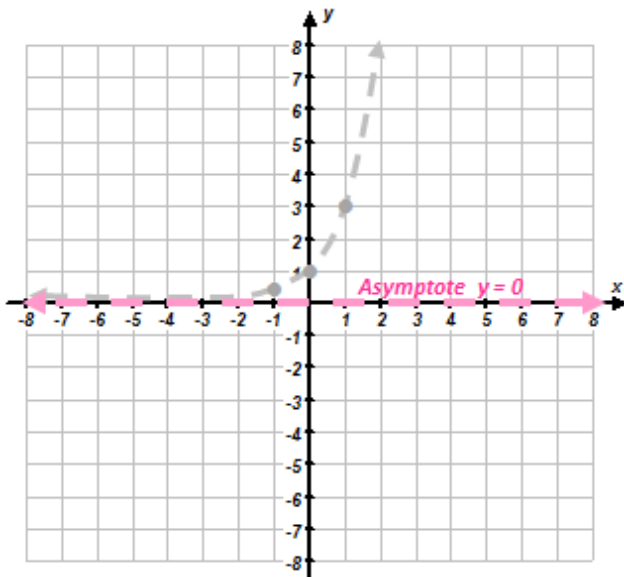
Transformed Function: $t(x) = -3^{(x+3)}$

d. Parent Function: $f(x) = 3^x$

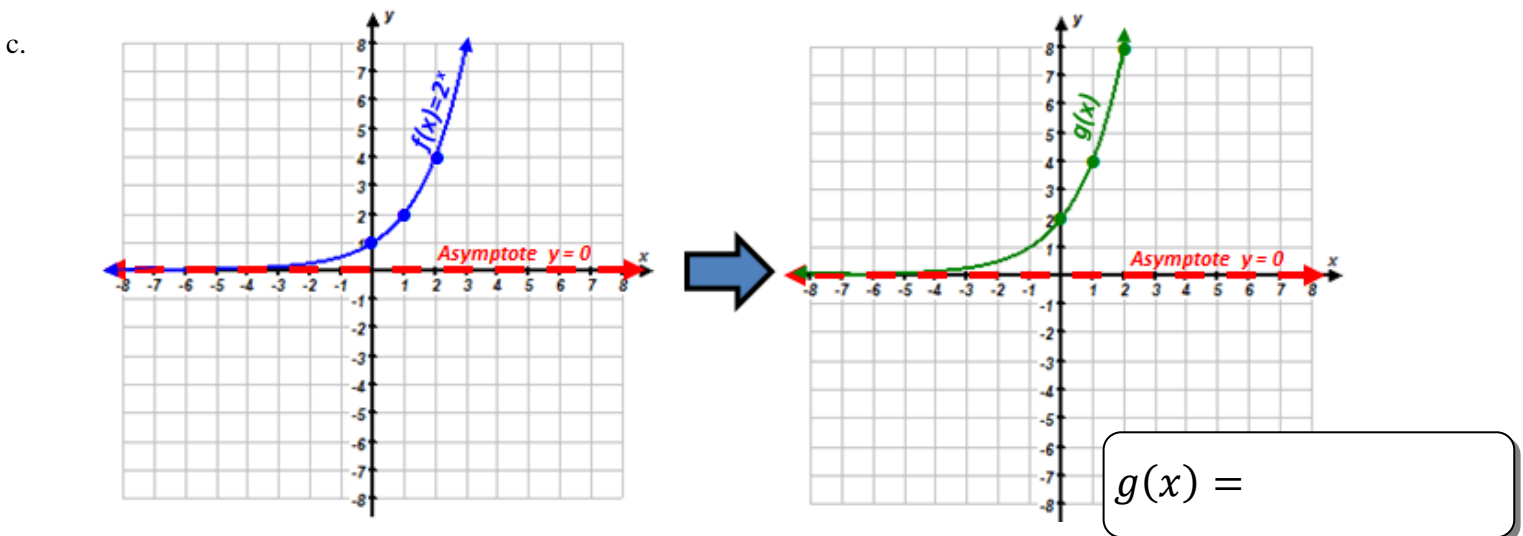
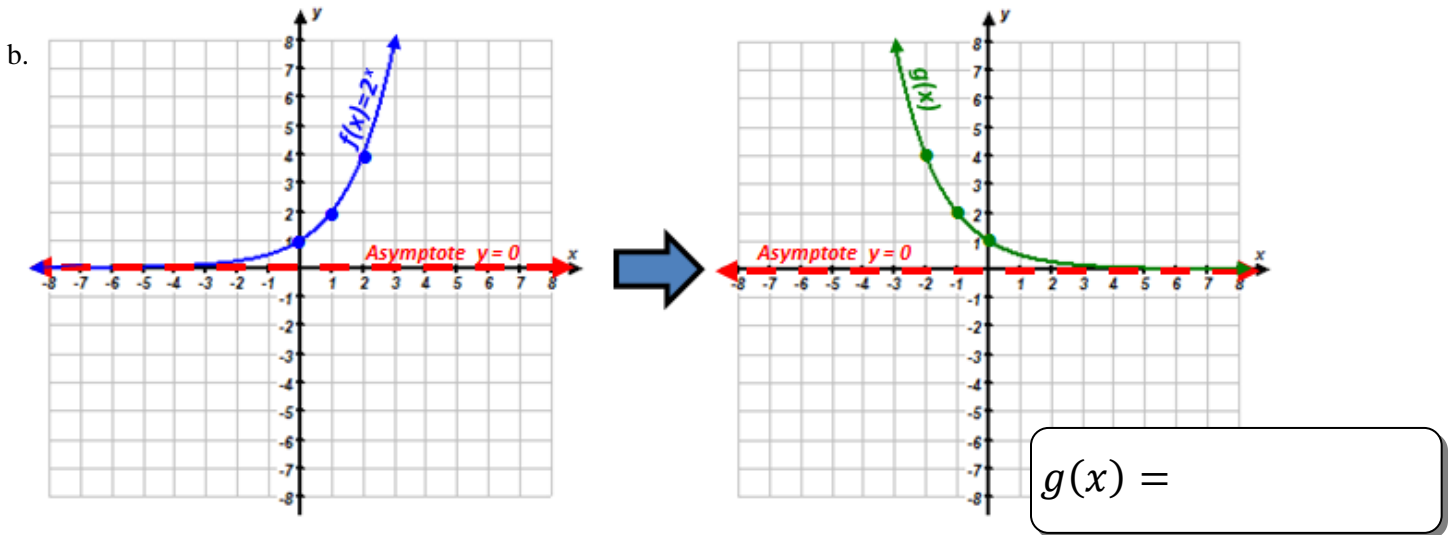
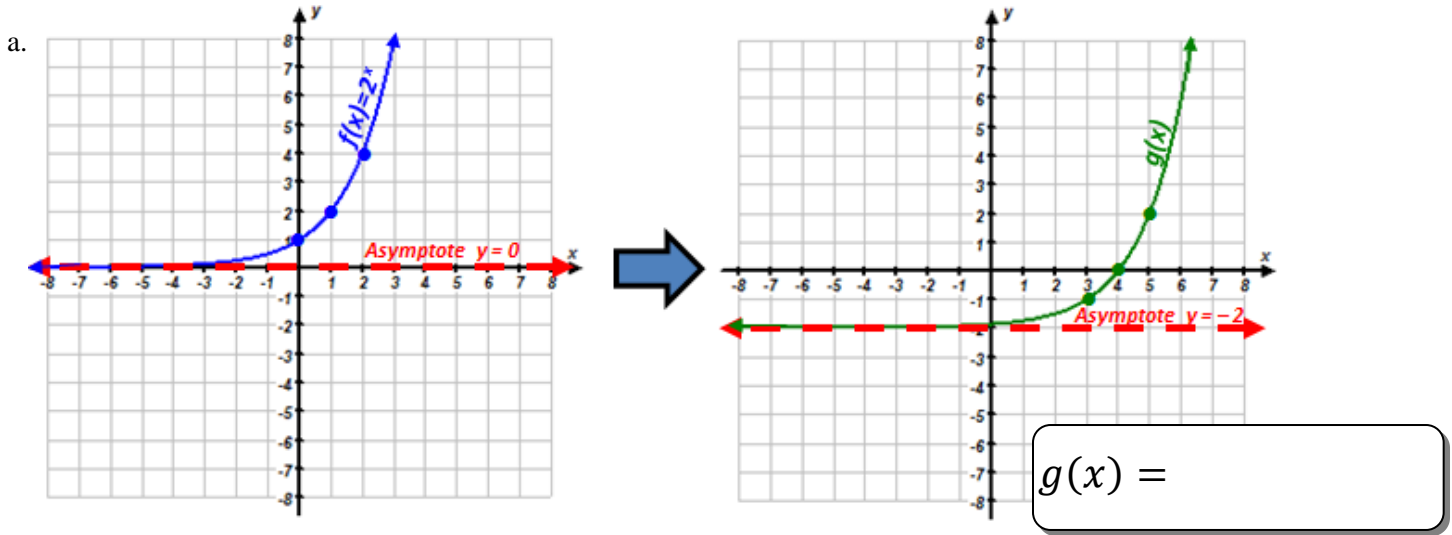
Transformed Function: $t(x) = 3^{(-x)} + 2$

Determine the Domain & Range of the function.

Determine the Domain & Range of the function.



11. Given the graph of $f(x)$ on the left, determine an equation for $g(x)$ on the right in terms of $f(x)$.



12. Given a table of values for the exponential function $f(x)$ and a description of the transformations for the function $g(x)$, fill out the table of values based on the original points for $g(x)$, the transformed function.

a.

x	-1	0	1	2	3
$f(x)$	$\frac{1}{3}$	1	3	9	27

Translated Down 4

x	-1	0	1	2	3
$g(x)$					

b.

x	-1	0	1	2	3
$f(x)$	$\frac{1}{2}$	1	2	4	8

Translated Left 1 & Up 2

x					
$g(x)$					

c.

x	-1	0	1	2	3
$f(x)$	$\frac{1}{4}$	1	4	16	64

Reflect over x-axis

x					
$g(x)$					

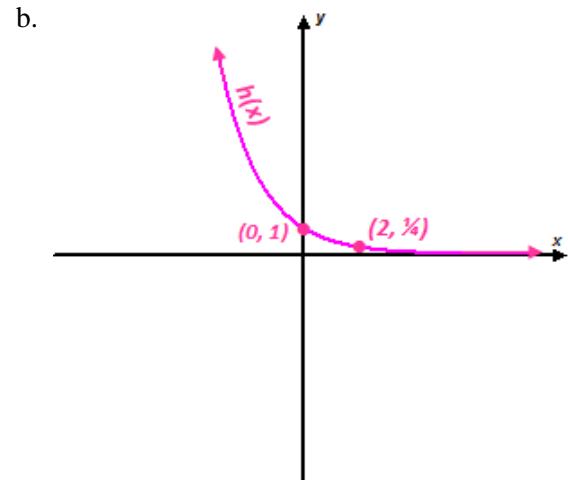
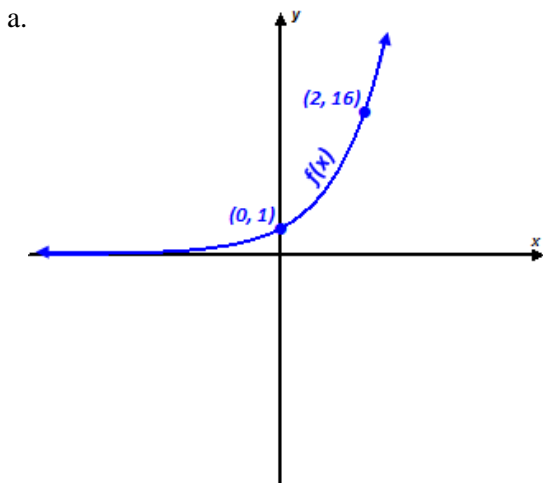
d.

x	-1	0	1	2	3
$f(x)$	$\frac{1}{2}$	1	2	4	8

Vertical Stretch of Factor 3

x					
$g(x)$					

13. Given each of the graphs below are exponential functions of the form $f(x) = a^x$, determine the parameter 'a' in each graph.



$f(x) =$

$h(x) =$