

Determine whether the equation represents an exponential function. EXPLAIN.

1. $y = 9x$

No; Linear

2. $y = 2(3)^x$

Yes; x is the exponent

3. $y = (-2)^x$

No; b cannot be negative

Determine whether the table represents a linear or an exponential function. EXPLAIN.

4.

x	y
1	3
2	9
3	27
4	81

+1 (x-axis), x3 (y-axis)

Exponential; ratio = 3

5.

x	y
1	4
2	6
3	8
4	10

+1 (x-axis), +2 (y-axis)

Linear; constant rate of change = 2

Evaluate the function for the given value of x .

6. $y = (1.2)^x; x = 2$

$y = (1.2)^2 = 1.44$

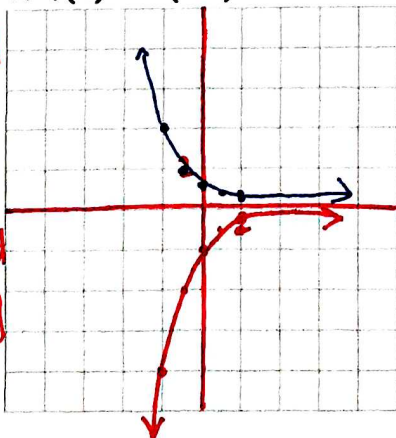
7. $f(x) = \frac{1}{2}(8)^x; x = -2$

$f(-2) = \frac{1}{2}(8)^{-2} = \frac{1}{128}$

Graph the function. Compare the graph to the graph of the parent function. Describe the domain and range of f .

8. $f(x) = -2(0.5)^x$

Reflected over the x -axis
stretched vertically

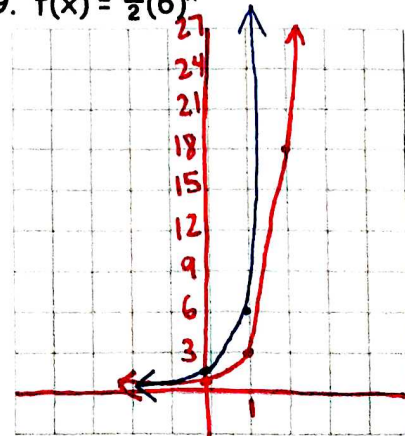


x	y
-2	-8
-1	-4
0	-2
1	-1
2	-0.5

D: \mathbb{R} R: $y < 0$

9. $f(x) = \frac{1}{2}(6)^x$

x	y
-2	4
-1	2
0	1
1	.5
2	.25



$y = 6^x$

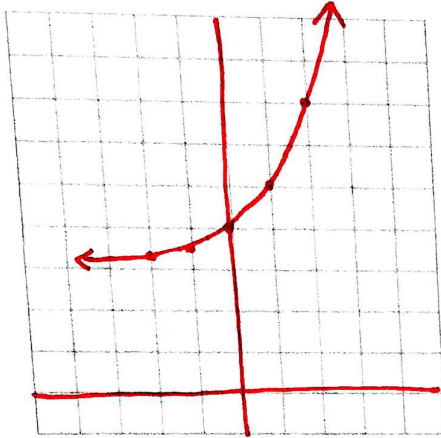
x	y	x	y
0	1/2	0	1
1	3	1	6
2	18	2	36

D: \mathbb{R} R: $y > 0$

horizontal stretch

Graph the function. Describe the domain and range. What does the "h" or "k" value do to the graph?

10. $f(x) = 2^x + 3$



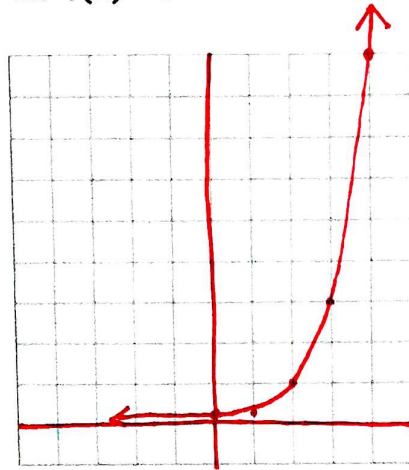
x	y
-2	3.25
-1	3.5
0	4
1	5
2	7

D: \mathbb{R} R: $y > 3$

h/k value:

$k = 3$; shifts up 3 units

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



x	y
0	.11
1	.33
2	1
3	3
4	9

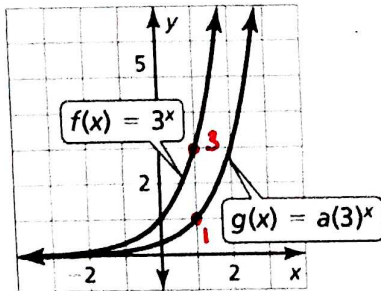
D: \mathbb{R} R: $y > 0$

h/k value:

$h = 2$; shifts right 2 units

Compare the graphs. Find the value of h, k, or a.

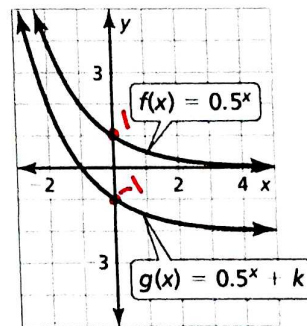
12.



$a = \frac{1}{3}$

$g(x)$ does not increase as rapidly as $f(x)$.

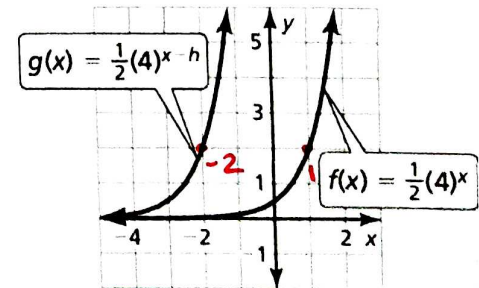
13.



$k = -2$

$g(x)$ is shifted down 2 units in comparison to $f(x)$.

14.



$h = -3$

$g(x)$ is shifted left 3 units in comparison to $f(x)$.