

Fill in the table for the function $f(x) = 2^x$.

x	0	1	2	3	4	5	6	7
f(x)								

Explain how to get the previous number in the table, for example from $f(7)$ to $f(6)$?

Use the pattern to fill in the table for the negative exponents.

x	-4	-3	-2	-1	0	1	2	3
f(x)								

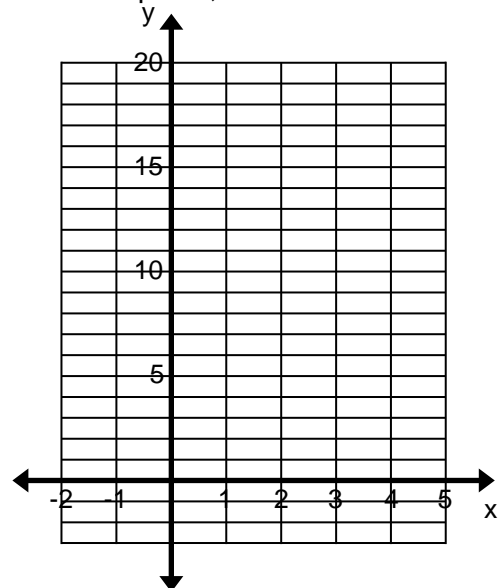
Review: Negative Exponents – Evaluate

- a) $f(x) = 3^x$, given $x = -1$
- b) $g(x) = 4^x$, given $x = -2$
- c) $f(t) = 2^t$, given $t = -5$
- d) $h(x) = 5^x$, given $x = -1$

Standard Form of an Exponential Growth Function: $f(x) = a \cdot b^{x-h} + k$

The Effect of a: Graph the following functions on the same coordinate plane, use 3 different colors. Then state the domain and range.

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



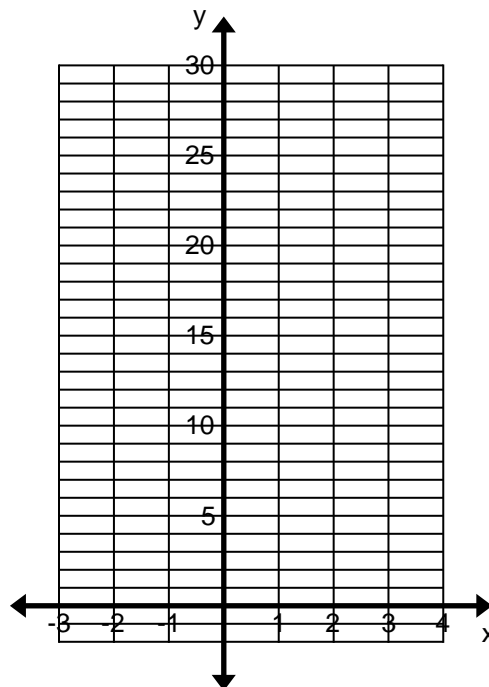
- How does a (the starting point) affect the graph?

D:

R:

The Effect of b : Graph the following functions on the same coordinate plane, use 3 different colors. Then state the domain and range.

$f(x) = 2^x$		$f(x) = 3^x$		$f(x) = 5^x$	
x	$f(x)$	x	$f(x)$	x	$f(x)$
-1		-1		-1	
0		0		0	
1		1		1	
2		2		2	
3		3		3	



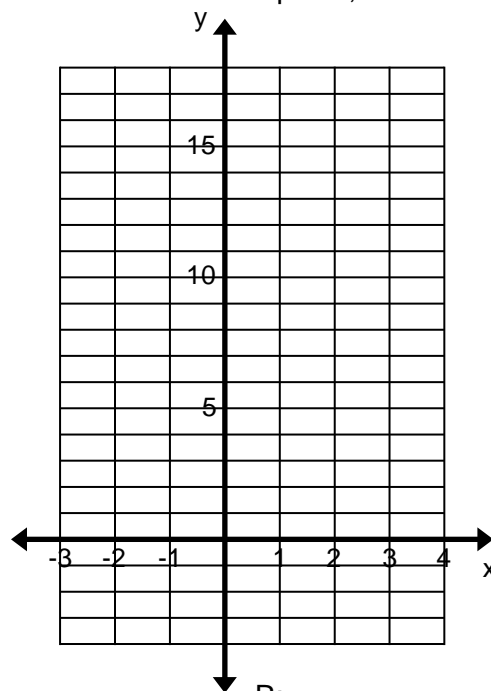
- How does b (the multiplier) affect the graph?

D:

R:

The Effect of k (asymptote): Graph the following functions on the same coordinate plane, use 3 different colors.

$f(x) = 4^x$		$f(x) = 4^x + 2$		$f(x) = 4^x - 1$	
x	$f(x)$	x	$f(x)$	x	$f(x)$
-1		-1		-1	
0		0		0	
1		1		1	
2		2		2	



- How does k (the shift) affect the graph?

D:

R:

Describe the transformations used to obtain the graph of $g(x)$ from the graph of $f(x)$.

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

$$g(x) = 3 \cdot 2^x - 1$$

WS: T3-52 Exponential Transformations

Show your work!

Evaluate.

1. $f(x) = 4^x$, given $x = -3$

2. $g(x) = 2^x$, given $x = -4$ 3. $h(x) = 5^x$, given $x = -2$

4. $g(x) = 2^x$, given $x = -1$

5. $f(t) = 2^t$, given $t = -5$

3. $h(t) = 5^t$, given $t = -4$

7. Graph the following functions on the same coordinate plane, use 4 different colors. State the domain and range for each function.

$f(x) = 3x + 2$	
x	$f(x)$
-1	
0	
1	
2	
D:	R:

$f(x) = 2 \cdot 3^x$	
x	$f(x)$
-1	
0	
1	
2	
D:	R:

$f(x) = 3^x + 2$	
x	$f(x)$
-1	
0	
1	
2	
D:	R:

$f(x) = 2 \cdot 3^x + 2$	
x	$f(x)$
-1	
0	
1	
2	
D:	R:

