

4.5/4.6 Graphing Exponential Functions.

$$f(x) = ab^{k(x-d)} + c$$

a = Vertical stretch

k = Horizontal stretch

d = Horizontal shift

c = Vertical shift

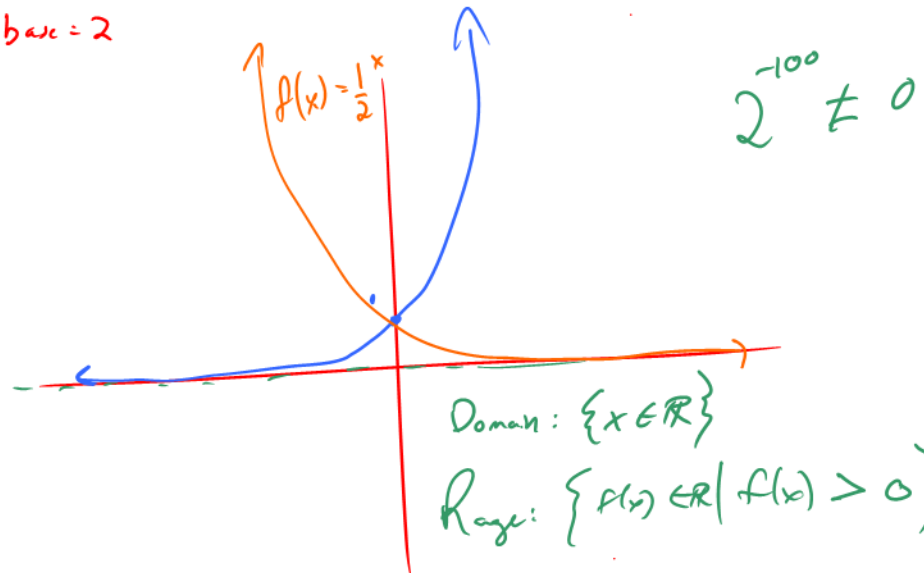
b = base.

$b = 2, \frac{1}{2}, 3, \text{anything.}$

Example $f(x) = 2^x$

base = 2

x	$f(x)$
-3	$\frac{1}{8} = 0.125$
-2	$\frac{1}{4}$
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8



Example 2: $f(x) = -3(3)^{\frac{1}{2}(x-4)} + 8$

$f(x) = 3^x$

x	$f(x)$
-3	$\frac{1}{27} = 0.037$
-2	$\frac{1}{9} = 0.111$
-1	$\frac{1}{3} = 0.333$
0	1
1	3
2	9
3	27

$\frac{1}{2}x + 4$	$-3f(x) + 8$
2.5	7.8
3	7.6
3.5	7
4	5
4.5	-1
5	-19
5.5	-73

