

Complete the following. There is a lot of graphing fun on this worksheet!!

- Read page 123 in your textbook, particularly the sections "The Effect of the Parameter a " and "The Effect of the Parameter b ".
- Complete the tables for each of the functions below.
 - Graph each function (using different colors) on a single set of axis on a separate sheet of paper. You should have 3 functions on one xy -plane.
 - Label each function.
 - Find the domain and range of each function.

x	0	1	2	-1	-2
$y = 3^x$					

x	0	1	2	-1	-2
$y = (\frac{1}{3})^x$					

x	0	1	2	-1	-2
$y = 4^x$					

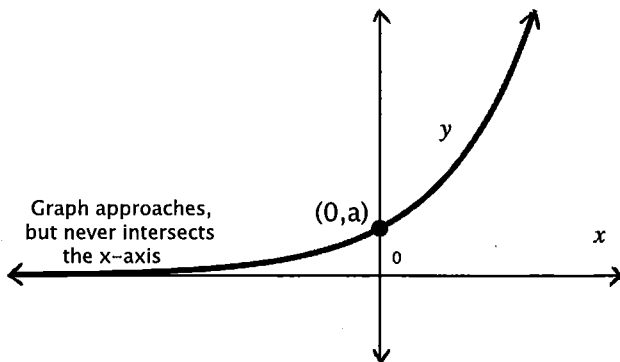
Recall Negative exponents: $r^{-n} = \frac{1}{r^n}$

EX: $2^{-1} = \frac{1}{2}$, $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

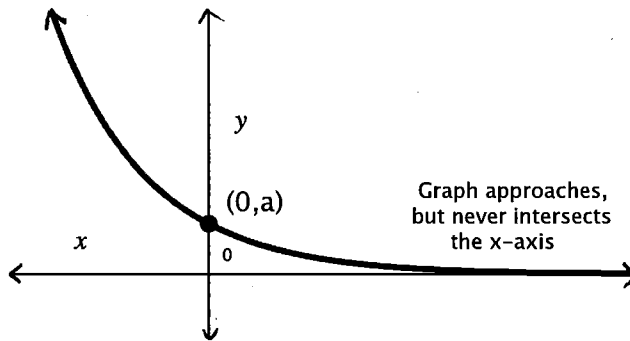
EX: $(\frac{1}{2})^{-1} = \frac{1}{\frac{1}{2}} = 2$,

$(\frac{1}{2})^{-3} = \frac{1}{(\frac{1}{2})^3} = \frac{1}{\frac{1}{8}} = 8$

In General for $a > 0$:



If $b > 1$, the graph will rise from left to right. (Larger b -values will give you faster growth when $x > 0$.)



If $0 < b < 1$, the graph will fall from left to right. (Smaller b -values will give you faster decrease when $x > 0$.)

- Complete a table for the following functions: $y = 2^x$, $y = 3(2)^x$, $y = \frac{1}{2}(2)^x$,

$$y = -2^x, \quad y = -\frac{1}{2}(2)^x$$

- Graph each function (using different colors) on a single set of axis on a separate sheet of paper. You should have 5 functions on one xy -plane.
- Label each function.
- Find the domain and range of each function.