

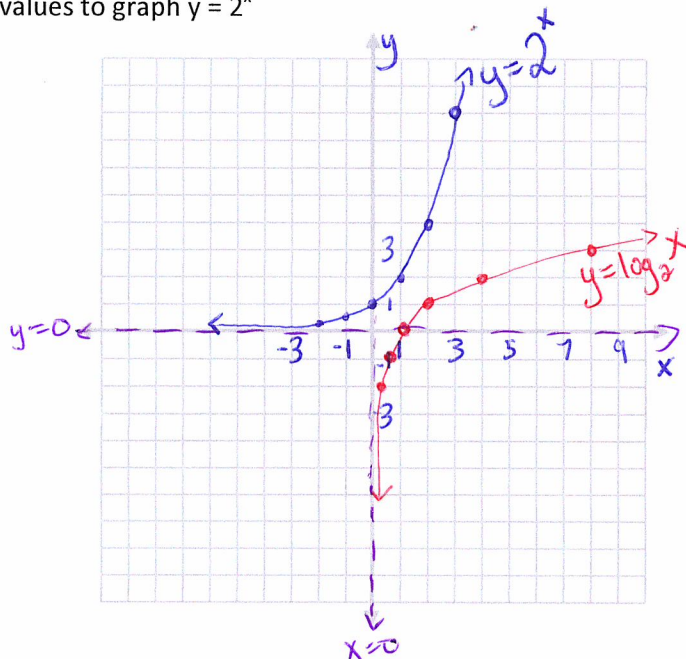
**To graph logarithmic functions**

**Example #1:**

a) Use a table of values to graph  $y = 2^x$

$y = 2^x$

x	f(x)
-2	1/4
-1	1/2
0	1
1	2
2	4
3	8



Identify the following for  $y = 2^x$ :

- Domain  $(-\infty, \infty)$  or  $\{x | x \in \mathbb{R}\}$
- Range  $(0, \infty)$  or  $\{y | y > 0, y \in \mathbb{R}\}$
- X intercept Does not exist
- Y intercept  $(0, 1)$
- Whether the graph represents an **INCREASING** or a **DECREASING** function  
*Increasing*
- The equation of the horizontal asymptote  
 $y = 0$

**REMEMBER THAT THE LOGARITHMIC FUNCTION IS THE INVERSE OF THE EXPONENTIAL FUNCTION**

b) i) State the equation of the inverse of  $y = 2^x$ . State in exponential and logarithmic form.  
ii) Sketch

x	f(x)
1/4	-2
1/2	-1
1	0
2	1
4	2
8	3

Identify the following for  $y = \log_2 x$ :

- Domain  $(0, \infty)$  or  $\{x | x > 0, x \in \mathbb{R}\}$
- Range  $(-\infty, \infty)$  or  $\{y | y \in \mathbb{R}\}$
- X intercept  $(1, 0)$
- Y intercept Does not exist
- Whether the graph represents an **INCREASING** or a **DECREASING** function  
*Increasing*
- The equation of any asymptote:  
 $x = 0$

i)  $x = 2^y$      $\log_2 x = y$

8.1 DAY 2 ASSIGNMENT

8.1 Assign P380 #1, 8', 9, 10

8.1 Ext P380 #14b, 15, 16, 17,