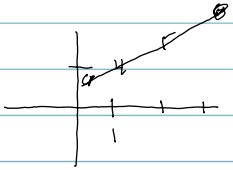


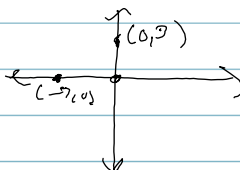
Section 6.3 → Graphing Exponential Functions

$$F(x) = x + 3$$

x	y
1	4
2	5
3	6



$$F(0) = 0 + 3 = 3$$



$$F(x) = 0 \Rightarrow x + 3 = 0 \\ x = -3$$

$$y = a \cdot b^{(x-h)} + k \rightarrow 2^5 \cdot 5$$

b^{x-h} , $x-h$

$$F(x) = a \cdot b^{x-h} + k$$

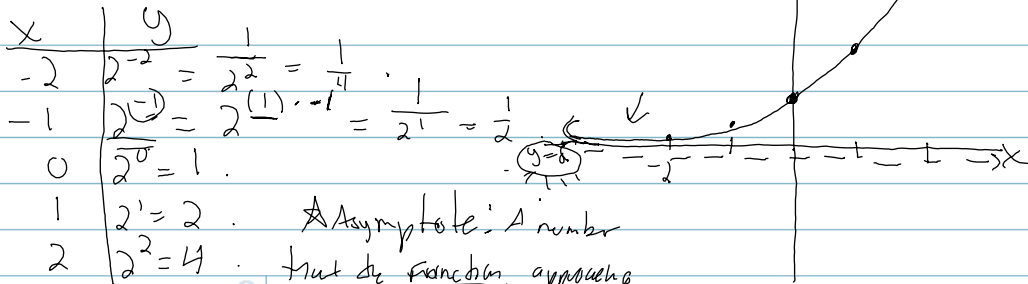
$$F(x-2) = 2^x \Rightarrow 2^{(x-2)} = y(x)$$

$$y(2) = 2^{(2-2)} = 2^0 = 1$$

$$F(2) = 2^2 = 4$$

$$y = 2^x$$

$$2^{-1000} = \frac{1}{2^{1000}} = \text{V.L.N.}$$

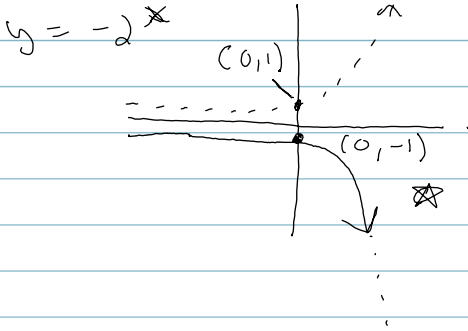


★ Asymptote: A number that the function approaches but never reaches.

$$y = -2^x \quad \left\{ \begin{array}{l} -F(x) = y \end{array} \right.$$

$$F(x) = 2^x \quad ; \quad f(5) = 2^5 = 32$$

$$g(x) = -2^x \quad ; \quad g(5) = -2^5 = -(32)$$



$$y = b^x$$

$$\rightarrow F(x) = b^x$$

$$-F(x) = -b^x$$

$$F(-x) = b^{-x}$$

$$F(-x) = -b^{-x}$$

$$y = 3^{(x-2)} + 4$$

$$(2, k)$$

$$(2, 4) \rightarrow \text{"Shift"}$$

$$y = 3^x \rightarrow (y=0) + 4$$

Start: $(0, 1)$

Shift: $(2, 4)$

$$y = (0) + 4$$

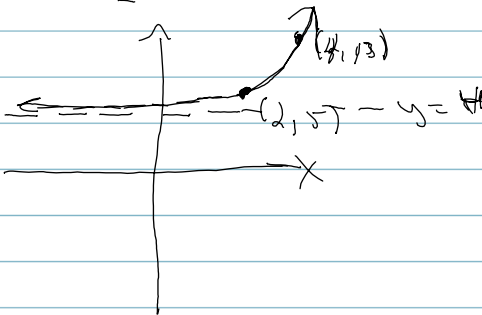
$$(2, 5)$$

$$y = 3^2 = 9$$

$$(2, 9)$$

$$(2, 4)$$

$$(4, 13)$$



$$\begin{aligned} y &= 3^{(4-2)} + 4 \\ &= 3^2 + 4 \\ &= 9 + 4 = 13 \end{aligned}$$