BE-18 MONDAY 3-12-07

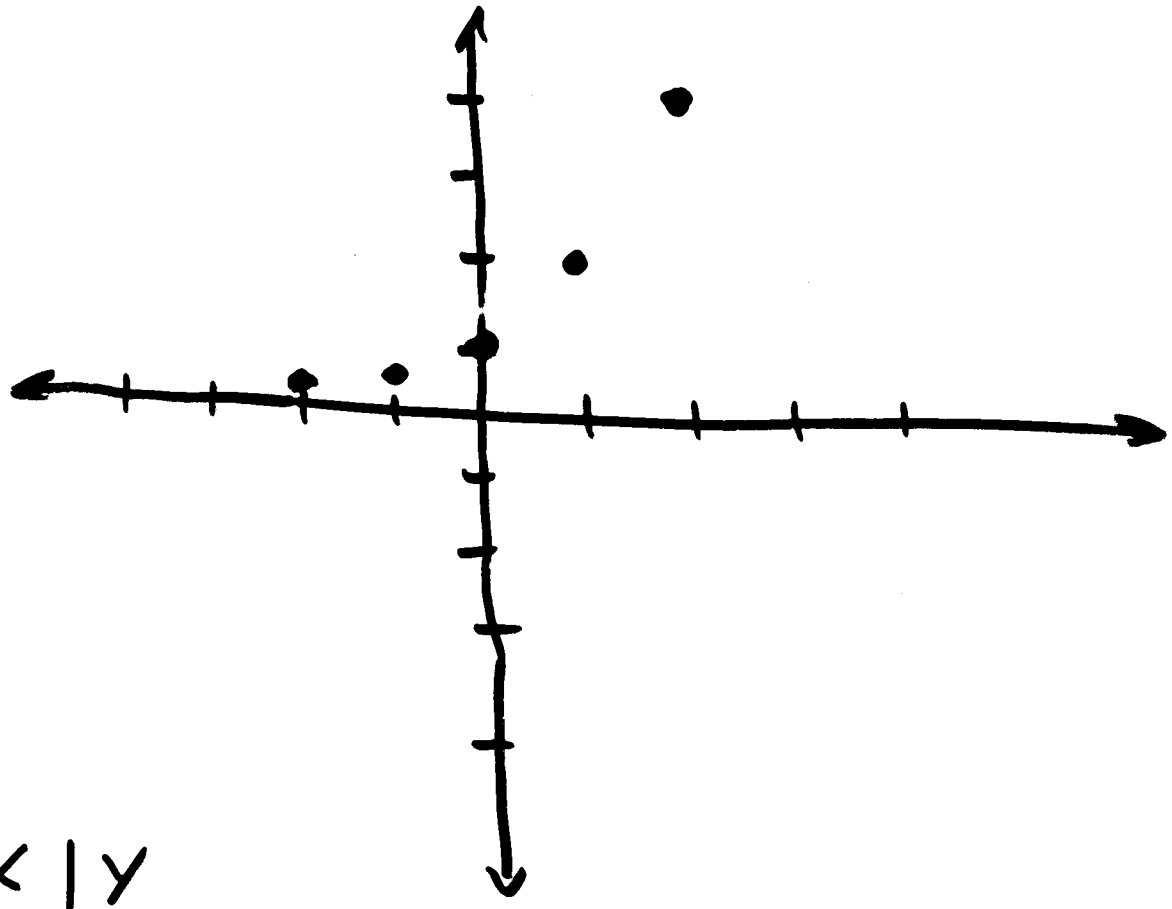
① WHAT IS A "FUNCTION"?

② GRAPH THE FOLLOWING FUNCTION:

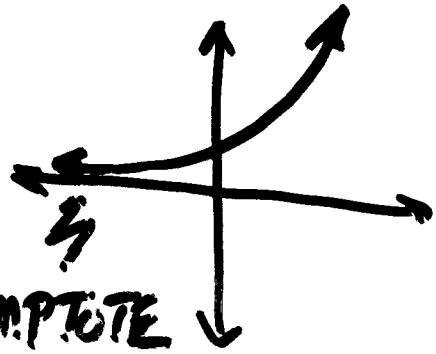
$$y = f(x) = 2^x$$

A GOOD WAY TO START IS TO MAKE A "T" table. Pick the "USUAL" VALUES of x to start, add more until you feel confident you see the shape of the graph.

x	$y = f(x) = 2^x$
-2	$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$
-1	$2^{-1} = \frac{1}{2}$
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$



x	y
-4	$2^{-4} = \frac{1}{2^4} = \frac{1}{16}$
4	$2^4 = 16$



A function of the form

$$y = a^x$$

is called an <u>exponential function</u>

Note: "a" must be positive ($a > 0$)
otherwise graph misbehaves

Why? How could you test?

Where does $y = a^x$ always cross the y axis?

(which means $x = 0$)

The function $y = a^x$ can have ANY real number for x, (the domain is $\{TR\}$).

You can use the graph to ESTIMATE:

ex) $y = 2^{1.5}$

ex) $y = 2^{-3.6}$

HW: • Read Ch. 10-5

• Pg. 558 # 13, 14, 18