Algebra 1
Lesson 11.2 –Exponential Functions
Mrs. Snow, Instructor

Let's think about population growth. If a cell were to split there would be 2. The 2 cells spit there will be 4. When the 4 split we get 8, the 8 make 16; 16 split into 32 and so on. Do you see a trend? The cell count is getting bigger and bigger, **exponentially** bigger that is.

Vocabulary
Exponential Function – A function in which the independent variable appears in the exponent of an equation. A number, **base** is raised to a variable exponent

$$f(x) = ab^x$$

Think back:

Linear Function	Quadratic Function	**Exponential Function**	
constant first difference	constant second difference	**constant ratio**	NEW!

In an exponential, as the x-value increases by a constant amount, the y-values are multiplied by a constant amount. *The amount is the constant ratio and is the value of b in:* $f(x) = ab^x$
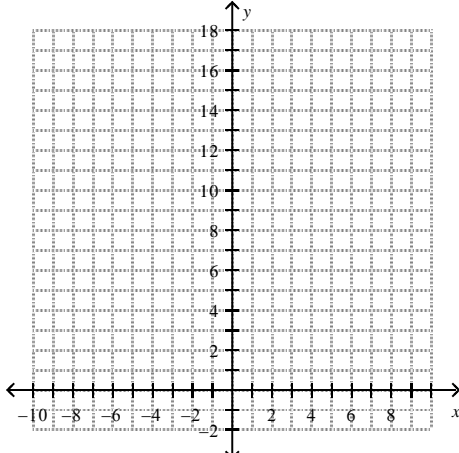This may not be readily apparent as the leading coefficient *a* may mask the *b* value. *but you will see a constant multiplier to get from one y value to the next!*

Tell whether each set of ordered pairs satisfies an exponential function. *(remember to convert into a table of values!*
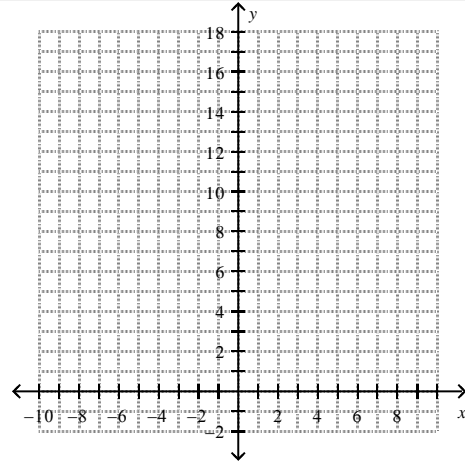
$\{(-1, 1), (0, 0), (1, 1), (2, 4)\}$	$\{(-2, 4), (-1, 2), (0, 1), (1, 0.5)\}$

Graphing: Choose 4 values for **x.** Select negative, positive AND! **select** $x = 0$ **as this will give you the y-intercept**

Graph the equations using a table of values.

$y = 2^x$	

$$y = 0.2(5)^x$$

What if $0 < b < 1$? (a fraction)

Graph $y = 4\left(\dfrac{1}{4}\right)^x$