CHAPTER 8: EXPONENTS & EXPONENTIAL FUNCTIONS

Exponential Functions

OBJECTIVES

❑ I can evaluate exponential functions

❑ I can graph exponential functions

PART 1: EVALUATE

▪ **Remember:**

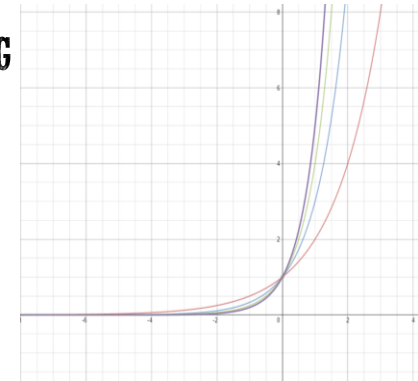| Definition	Exponential Function
An **exponential function** is a function in the form $y = a \cdot b^x$, where a is a nonzero constant, b is greater than 0 and not equal to 1, and x is a real number.	
Examples $y = 0.5 \cdot 2^x$ $f(x) = -2 \cdot 0.5^x$	

① Evaluate each exponential function for the domain $\{-2, 0, 3\}$.

a. $y = 4^x$ **b.** $f(x) = 10 \cdot 5^x$ **c.** $g(x) = -2 \cdot 3^x$
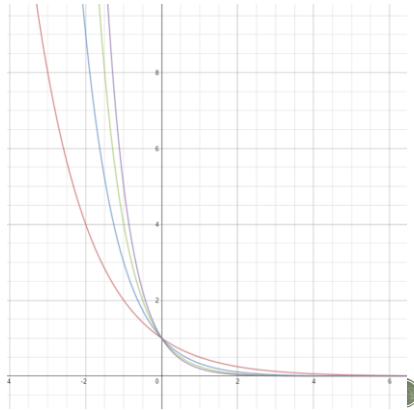
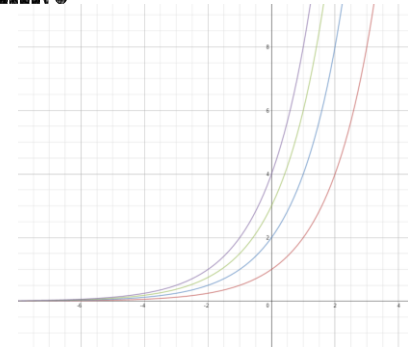## PART 2: GRAPHING

1 $y = 2^x$

2 $y = 3^x$

3 $y = 4^x$

4 $y = 5^x$

PART 2: GRAPHING

$y=\left(\frac{1}{2}\right)^x$

$y=\left(\frac{1}{3}\right)^x$

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

$y=\left(\frac{1}{5}\right)^x$

PART 2: GRAPHING

$y=2^x$

$y=2\cdot 2^x$

$y=3\cdot 2^x$

$y=4\cdot 2^x$

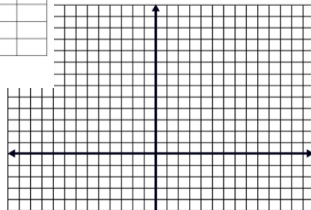## PART 2: GRAPHING

What does the following function look like? What is the "a" value? What does the "b" value do?

$f(x) = 4 * 3^x$ for x = -1, 0, 1, 2, 3

1. Table
2. Substitute values for x
3. Expand
4. Compute f(x)
5. Graph (what do you notice about the "a" value)

x	substitute	expand	f(x)
-1			
0			
1			
2			
3			

CAN YOU?? PROVE IT!!

- I can evaluate exponential functions
- I can graph exponential functions

What does the following function look like? What is the "a" value? What does the "b" value do?

$f(x) = 4 * \left(\frac{1}{3}\right)^x$ for x = -1, 0, 1, 2, 3

1. Table
2. Substitute values for x
3. Expand
4. Compute f(x)
5. Graph (what do you notice about the "a" value)

x	substitute	expand	f(x)
-1			
0			
1			
2			
3			