Name: _____ **Precalculus Unit 8, Lesson 1**

Aim: How do we graph exponential functions?

I. Do Now:

1. Complete the tables and graph the functions on the same set of axes below:

(a)

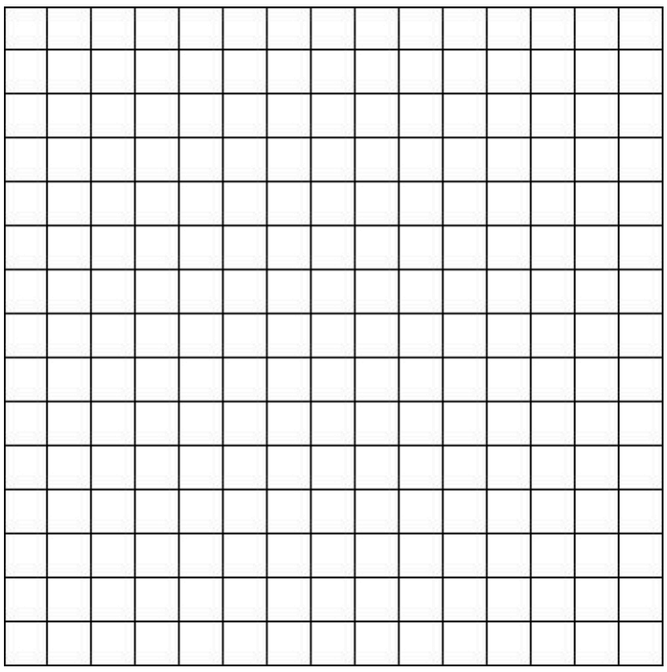
x	$y = 2^x$	(x, y)
−2		
−1		
0		
1		
2		

(b)

x	$y = 3^x$	(x, y)
−2		
−1		
0		
1		
2		

(c)

x	$y = 10^x$	(x, y)
−2		
−1		
0		
1		
2		



II. Observations:

Exponential functions are in the form $y = b^x$, where $b > 0$ and $b \neq 1$.

Properties of Exponential Functions:

1. 5.

2. 6.

3. 7.

4.

Recall that *e* is the irrational number approximately equal to 2.718.

What would the graph of $y = e^x$ look like? _____

III. Transformations of Exponential Functions

For each function, sketch the graph, describe the transformation of the parent graph $y = 2^x$, and state the domain and range.

2. $y = 2^{-x}$
3. $y = -2^x$
4. $y = 2^x - 1$
5. $y = 2^{x+1}$
6. $y = 2^x + 3$
7. $y = 2^{3x}$
8. $y = 2 \cdot 2^x$
9. $y = \frac{1}{2} \cdot 2^x$
10. $y = 2^{x-4} + 3$
11. $y = \left(\frac{1}{2}\right)^{x+2} + 1$
12. $y = 10 - 2^{x+5}$
13. $y = 2^{0.5x+2} - 4$

HW9
Read pages 238 – 243.
p. 247: 1, 2, 3, 8, 9, 10, 23 – 30.
p. 752: 4, 5