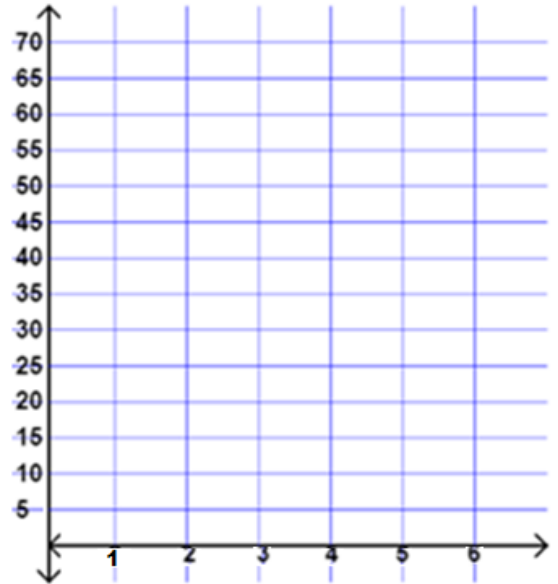### AIM: HOW DO WE GRAPH AND INTERPRET EXPONENTIAL EQUATIONS?
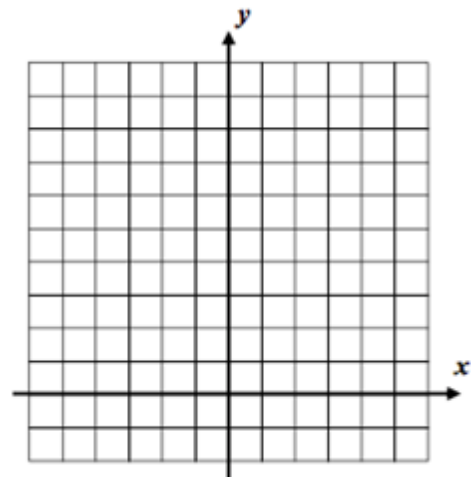
1. Using a piece of paper, determine the number of sections you have after folding it in half each time. After each fold, record the number of sections formed. Record this information in the table below and then graph the coordinates on the graph provided.

| # of folds	# rectangles
0	
1	
2	
3	
4	
5	
6	

_____

_____

2. Graph $y = 3^x$ $\{-2 \le x \le 2\}$

| x	y
-2	
-1	
0	
1	
2	

_____

_____

3. During March Madness, (the NCAA Basketball Tournament) teams play against one another with **only** the winning teams progressing to the next round. The tournament starts with 64 teams. After each round, the number of teams playing at each round is half of the number of teams playing in the previous round. How many teams are left in the tournament by round 5?
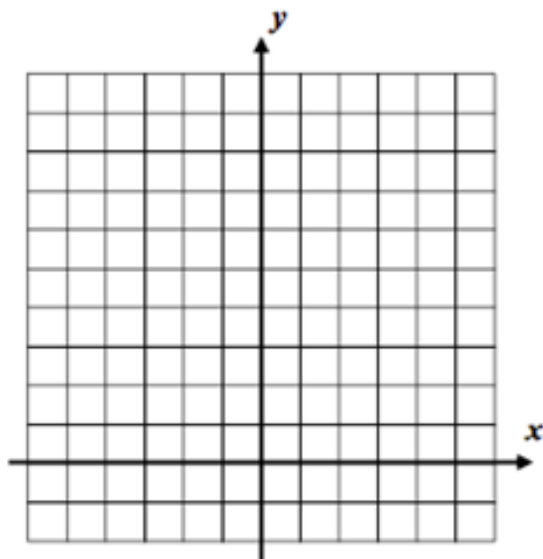
# of rounds	# of teams left
0	
1	
2	
3	
4	
5	
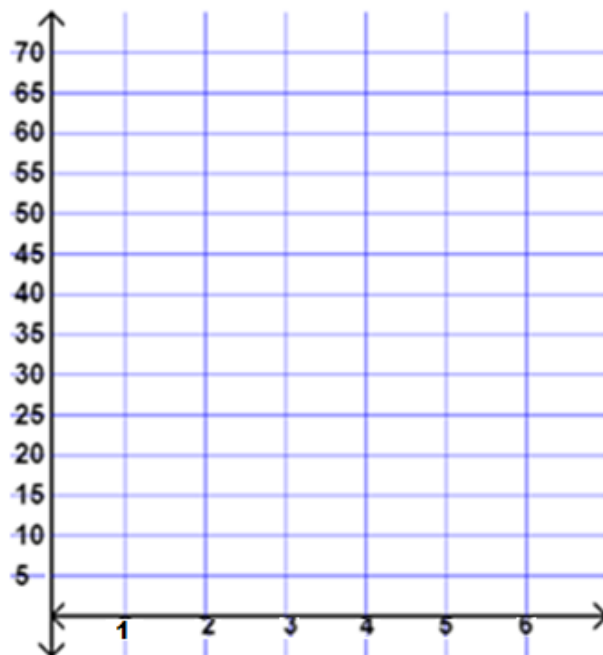
4. Graph $y = \left(\dfrac{10}{3}\right)^x$ $\{-2 \le x \le 2\}$

x	y
-2	
-1	
0	
1	
2	
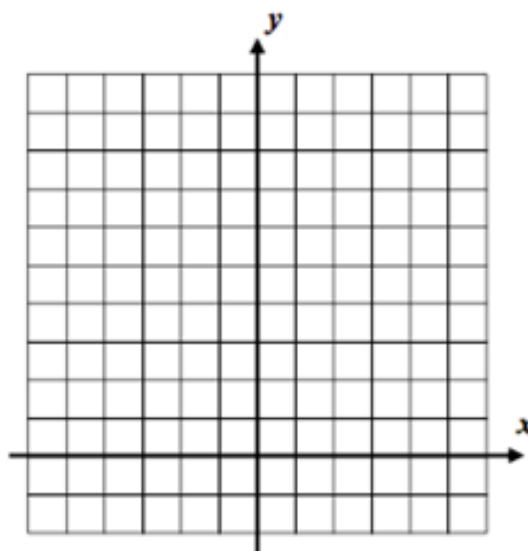
5. Graph $y = 3^x$ $\{-2 \leq x \leq 2\}$

6. Graph $y = \left(\dfrac{10}{3}\right)^x$ $\{-2 \leq x \leq 2\}$

- $y = b^x$ and $y = \left(\dfrac{1}{b}\right)^x$ are always _____ over the _____

- An equivalent equation to $y = \left(\dfrac{10}{3}\right)^x$ is:_____.

- When the interval is given _____.

7. Write an equation that would be a reflection in the y-axis of $y = 5^x$:_____

8. Identify which of the following equation is an exponential equation.

   1. $y = (0.5)^x$ 2. $y = (-2)^x$ 3. $y = \left(\dfrac{1}{3}\right)^2$ 4. $y = (4x)^x$

Explain your answer:_____

9. Identify which table represents an **exponential** equation.

a.

n	0	1	2	3	4	5
$A(n)$	-1	1	3	5	7	9

b.

n	0	1	2	3	4	5
$A(n)$	1	4	16	64	256	1024

10. Identify which of the following equations represent either growth or decay. Explain your answer.

	Equation	Growth (G) or Decay (D)	Explanation
a)	$y = .65^x$		
b)	$y = 1.25^x$		
c)	$y = \left(\dfrac{5}{2}\right)^x$		
d)	$y = \left(\dfrac{1}{4}\right)^x$		
e)	$y = \left(\dfrac{2}{3}\right)^x$		
f)	$y = \left(\dfrac{7}{3}\right)^x$		