

# Precalc Warm Up – 1/6/11

Name: \_\_\_\_\_

Period: \_\_\_\_\_

1) Consider the function  $f(x) = 2^x$ :

a. Find  $f(1)$

b. Find  $f(2)$

c. Find  $f(0)$

d. Find  $f(3)$

e. Find  $f(-3)$



# Precalc

## Calculating Average Rates of Change

Name:\_\_\_\_\_Date:\_\_\_\_\_Period:\_\_\_\_\_

Students will be able to find the average rate of change of an exponential function given a graph or an equation.

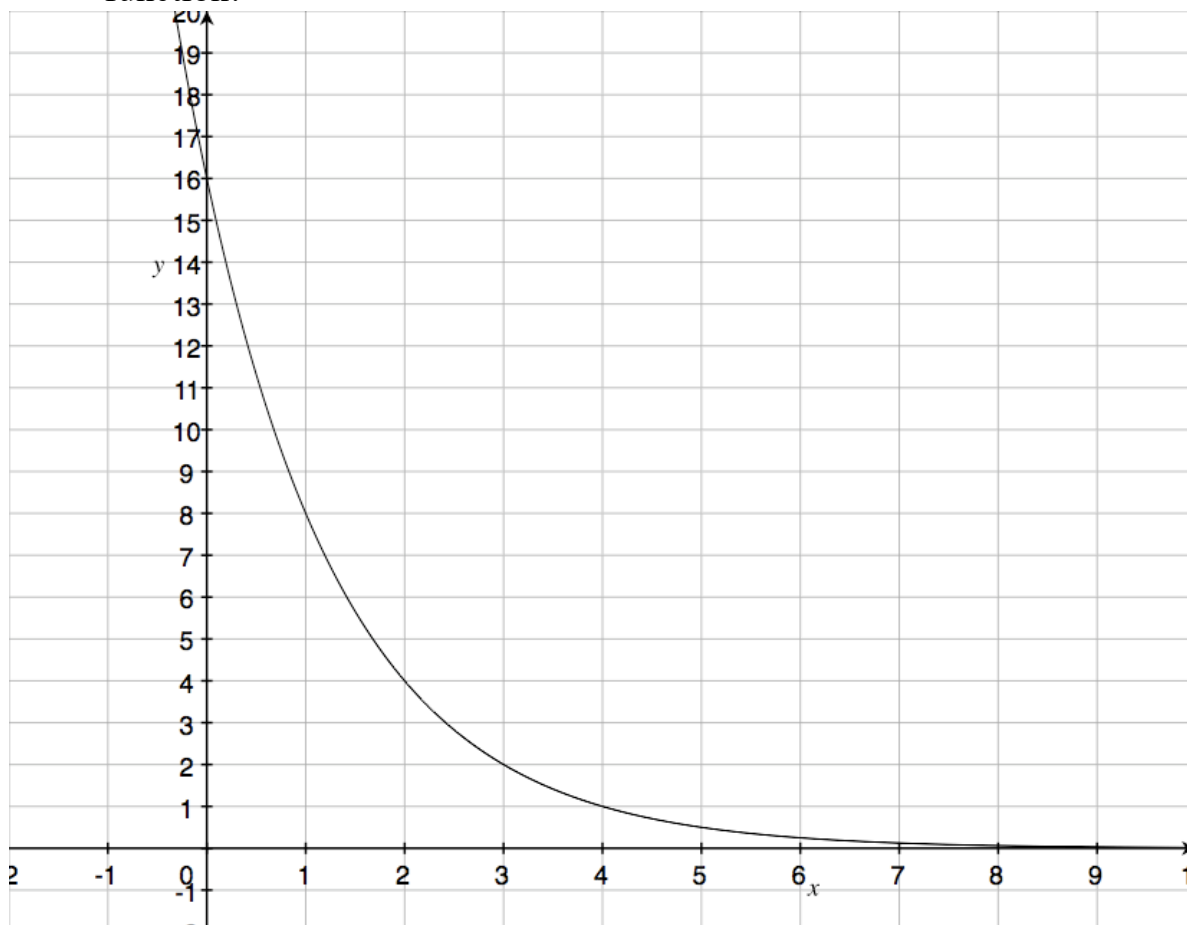
First let's remind ourselves a little about exponential functions:

Equation:

Table:

Graph:

- 1) Find the average rate of change from  $x=0$  to  $x=2$  for the following function.



2) Find the average rate of change from  $x=1$  to  $x=4$  for the following function.

$x$	$f(x)$
-1	1
0	3
1	6
2	12
3	24
4	48
5	96

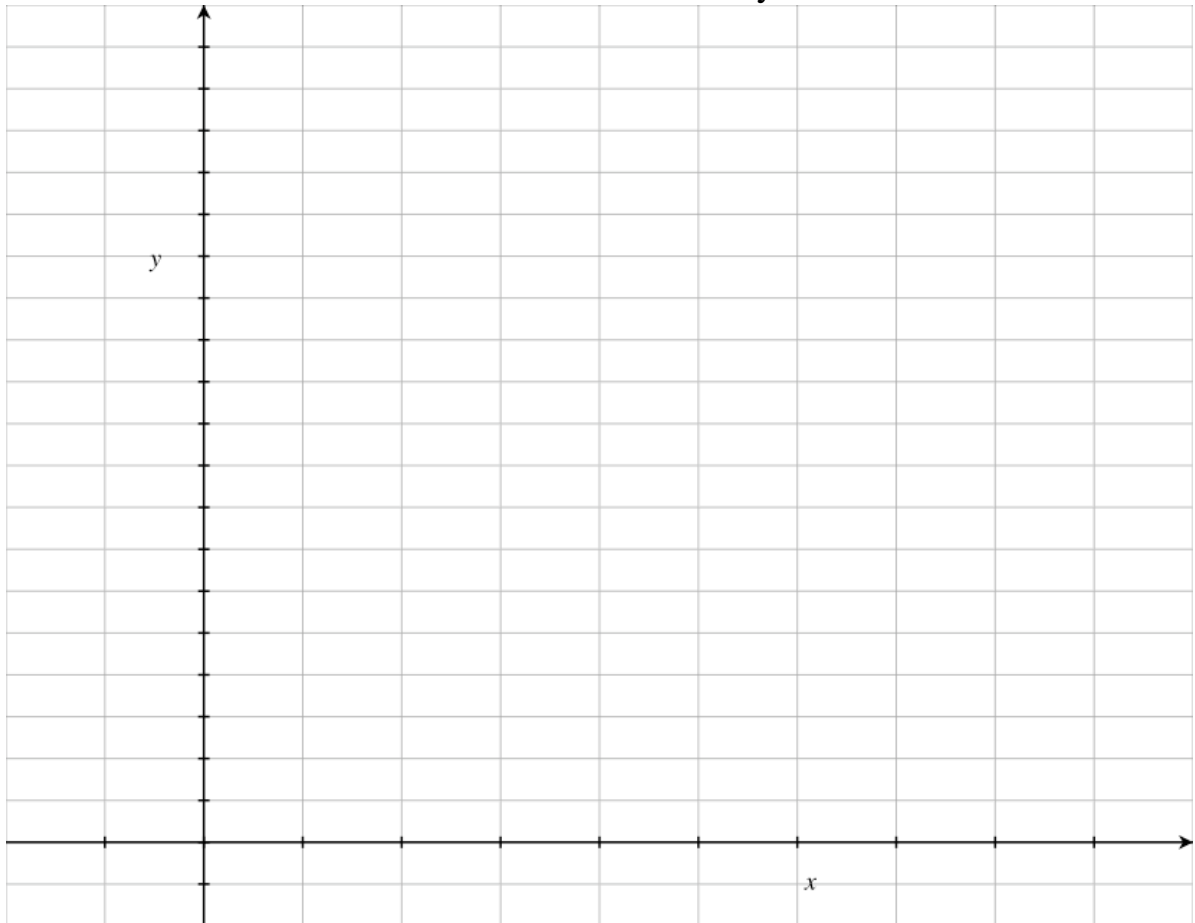
- 3) Find the average rate of change from  $x=1$  to  $x=2$  for the following function.

$$f(x) = 4(2^x)$$

4) Consider the following scenario:

An inflated balloon contains 320 liters of air at time 0. The balloon pops and loses half of its air every second.

- a. Sketch the amount of air in the balloon over time on the axes provided below. Time in seconds should be on the x-axis and liters of air in the balloon should be on the y-axis.



- b. How much air is left in the balloon at 4 seconds?
- c. What is the average rate of change of air in the balloon from time 0 to 4 seconds?

- d. Is the average air loss from the balloon greater from 0 seconds to 4 seconds or from 4 seconds to 6 seconds? (You need a mathematical argument.)



# Precalc – Exit Slip – 1/6/11

Name: \_\_\_\_\_

Period: \_\_\_\_\_

- 1) Find the average rate of change of the function  $f(x) = x^2 + 2x - 3$  from  $x=2$  to  $x=5$