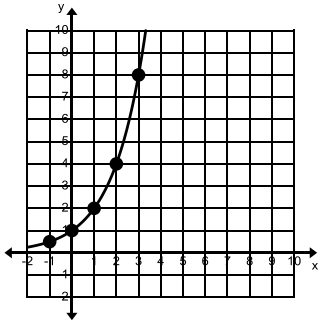
Worksheet T3-46, Writing Exponential Equations using a Graph & Finding the Rate of Change

Name: _____ Date: _____ Period: _____

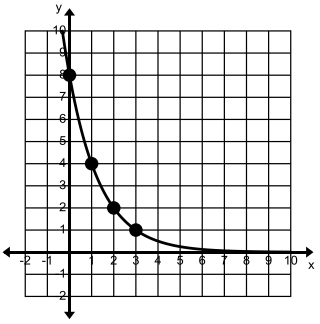
Determine the Exponential Equation, $f(x) = a \cdot b^x$, for each of the following graphs.

1)



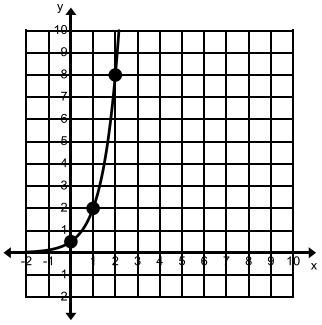
f(x)=

2)



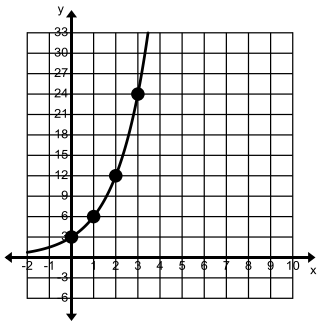
f(x)=

3)



f(x)=

Given the following Exponential Equations, find the rate of change between the given x intervals. Which x intervals produce the greatest rate of change?

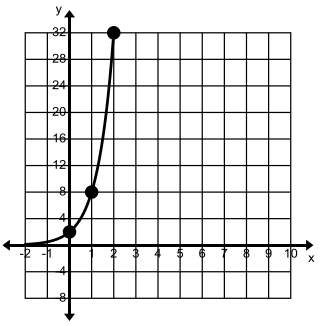


4) f(x) =

x	*f(x)*
0	3
1	6
2	12
3	24

x = {0, 1}; rate of change =

x = (2, 3}; rate of change =

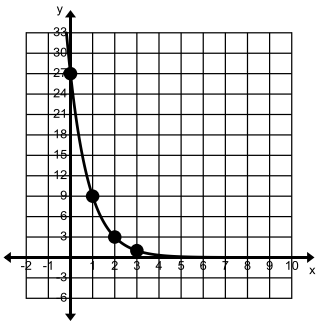


5) f(x) =

x	*f(x)*
0	2
1	8
2	32
3	128

x = {0, 2}; rate of change =

x = (1, 3}; rate of change =



6) f(x) =

x	*f(x)*
0	27
1	9
2	3
3	1

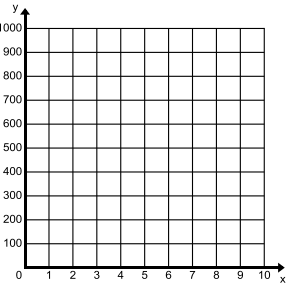
x = {0, 3}; rate of change =

x = (1, 2}; rate of change =

Review:

7. You plan on saving money for college. You start when you are 8 years old with $500 that you earned during the summer. You plan on earning 8% per year on your investment. What is the exponential function that shows how much you will make? Complete the table and graph. How much money will you have after 5 years? 8 years? 10 years?

t	*f(t)*
0	
1	
2	
3	



f(x) =

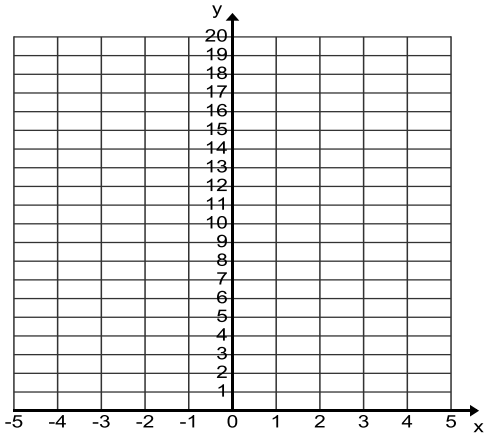
f(5) =

f(8) =

f(30) =

8.) Fill in the function table and plot the points, connect the points in order. Show your work!

x	$f(x)=16\cdot(\frac{1}{2})^x+3$	$f(x)$	$(x,\ f(x))$
-1			
0			
1			
2			
3			
4			



Determine if the functions are increasing or decreasing. Then state the location of the asymptote.

9.) $f(x)=2^x-7$ Growth or Decay

asymptote (k value):_____

10.) $f(x)=\frac{2}{3}\cdot 5^x+4$ Growth or Decay

asymptote (k value)::_____

11.) $f(x)=8\cdot 4^x-\frac{1}{4}$ Growth or Decay

asymptote (k value)::_____

12.) $f(x)=3(2)^x$ Growth or Decay

asymptote (k value):_____