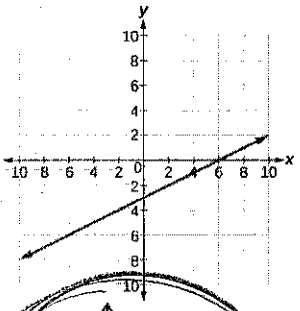
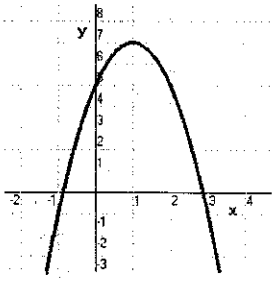
Name KEY Block _____ Date _____

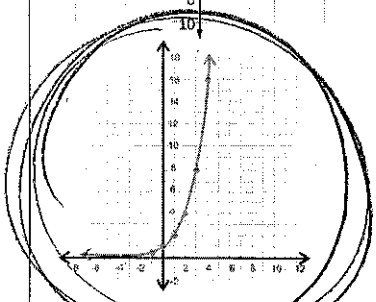
Unit 6: Exponential Functions Study Guide

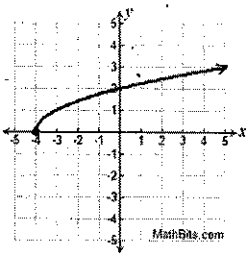
Calculator Inactive

1.) Identify the graph that models exponential growth.









2.) Identify each situation that can be modeled with an exponential function.

a) Lime charges a start up fee of $1 and $0.50 for each additional mile you ride the bike.

b) A bank account starts with $100 and earns 6% interest each month.

c) A cell triples in size every 2 hours.

d) An airplane if flying at an altitude at 45,000 feet and begins descending at a rate of 100 feet per minute.

e) The population in a town decreases at a rate of 10% each year.

3.) Which choice could be modeled by a linear function?

a) the height, y, of a ball after bouncing x times, if each bounce reaches ½ the previous height

b) the amount, y, of radioactive material remaining after x years when decay occurs at a rate of 15% each year

c) the amount of money, y, in an account after x years earning 2% interest compounded annually

d) The monthly cost, y, to have a gym membership for x months at a rate of $15 per month

4.) Two functions are shown below:

$$f(x) = \frac{1}{2} \circ 2^x$$

$$g(x) = 16 - 2x$$

What is the largest integer value of x such that $f(x) \leq g(x)$?

X=4

X	f(X)	g(X)
1	1	14
2	2	12
3	4	10
4	8	8
5	16	6

5.) Write an exponential function representing an exponential decay with a 18% rate of change where A represents the initial value and x represents time in years.

$r = 18\% \rightarrow .18$

decay $\rightarrow y = A(1-r)^t$

$y = A(1-.18)^x$

$y = a(0.82)^x$

6.) Beth and Doug are playing a game.

- Both Beth and Doug have 200 points.
- At the end of each turn, Beth's points are doubled.
- At the end of each turn, Doug's points are increased by 400.

At the start of which turn will Beth have more points than Doug?

turn	Beth	Doug
0	200	200
1	400	600
2	800	1000
3	1600	1400

start of turn 4