Hon Alg 2 Hwk #23 Sec 8-1 Preview Spring 2017 Name

1. (a) $y = a \cdot b^x$ is the **general form** for an _____.

(b) What are the allowed values for

x : a : b :

2. b is the **base** of this function. When $b > 1$ the equation $y = a \cdot b^x$ models _____

and b is called the _____

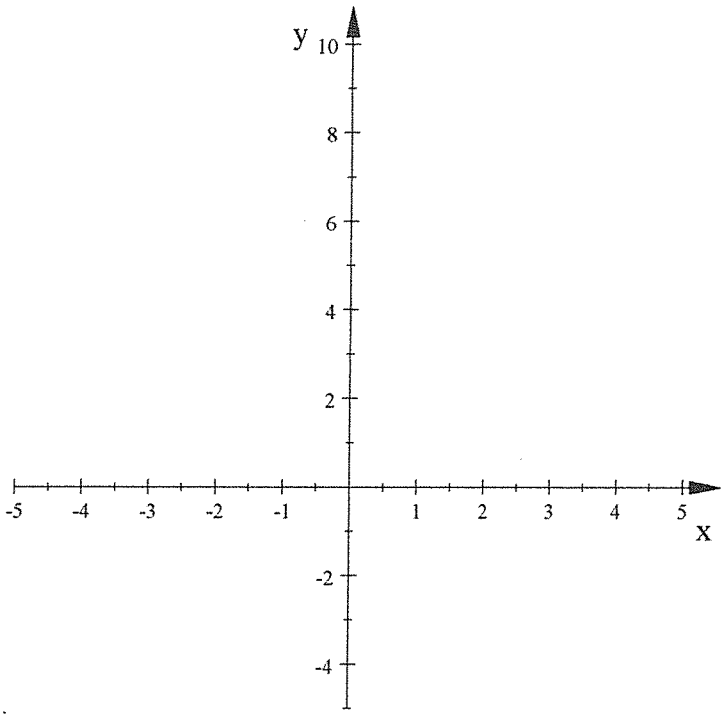
3. A) Use a graphing calculator and graph $Y_1 = 2^x$ this is where $a = 1$ & $b = 2$. Use the following window:

$X_{\min} = -5$ $X_{\max} = 5$ $Y_{\min} = -5$ $Y_{\max} = 10$

B) What is the y-intercept?

C) In Y_2 and Y_3 graph $y = b^x$ for 2 other values of b bigger than 2.

D) Make a sketch of all three graphs below labelling each graph with it's equation.



E) What happens to the graphs as b increases?

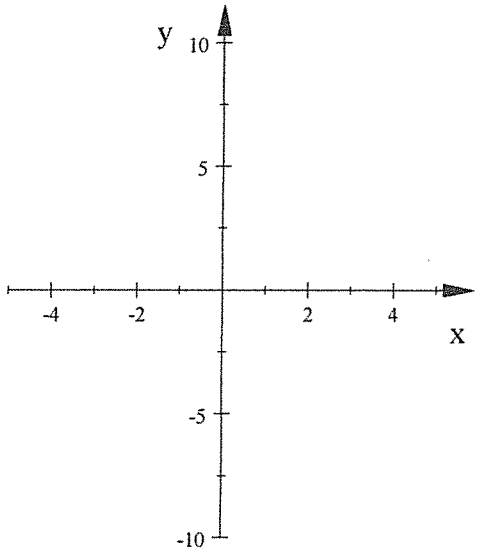
F) What point do all three graphs have in common?

G) All three graphs have the same horizontal asymptote which is _____

H) The graphs approach this horizontal asymptote as the values of x _____

4. A) Leaving $Y_1 = 2^x$ (remember this is where $a = 1$ & $b = 2$) graph in Y_2 and Y_3, $y = a \cdot 2^x$ for 2 other positive values of a such that $0 < a < 10$.

B) Make a sketch of all three graphs labelling each graph with it's equation.



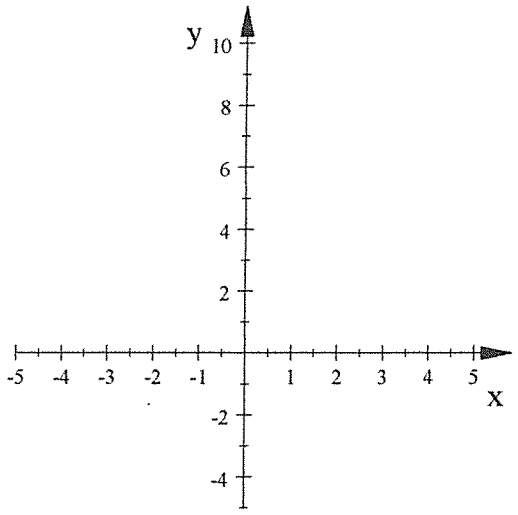
C) Explain what changing the value of a does to the graph.

D) Now graph $y = a \cdot 2^x$ for a negative value of a. What does this do to the graph?

5. A) When the value of b is between 0 and 1, $0 < b < 1$,

then the equation $y = a \cdot b^x$ models _____ and b is called the _____

B) Graph $Y_1 = 0.5^x$ ($a = 1$ & $b = 0.5$)and sketch the graph below



C) What is the y-intercept?

D) What is the horizontal asymptote?

E) The graph approaches this horizontal asymptote as the values of x _____