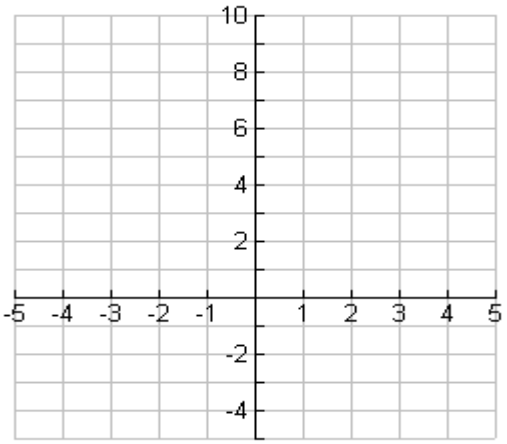
Algebra II – Quiz Sections 7.1, 7.3, and 7.4

You may do this quiz by yourself or with ONE other student from this class. Turn in one product. You may use any resources you have except for people not on your team.

1. Graph $f(x)=0.5(2)^x$ on the grid below. Fill in the function values in the table using the numbers given for x. Use the graph to answer the questions to the right. Write NONE if that is the case.

X	-2	-1	0	1	2	3
Y						



A) What is the domain of $f(x)=0.5(2)^x$?

_____

B) What is the range of $f(x)=0.5(2)^x$?

_____

C) Is this function exponential **growth**, exponential **decay**, or **neither** ? _____

D) What is the x-intercept? _____

E) What is the y-intercept? _____

F) Give the equation of any asymptote. _____

2. Multiple Guess: What would happen to the graph of an exponential function like problem #1 above if the value of the base was decreased to the number 1.5? Choose one.

A) the y values of the graph would increase more slowly when x was greater than 0.

B) the y values would remain unaffected when x was less than 0.

C) the graph would look like #1 after it was reflected over the x-axis.

D) the y values of the graph would increase faster when x was greater than 0.

E) None of these

3. Identify each of the following as being exponential **growth**, exponential **decay**, or **neither**.

_____ A) $y=9(0.48)^x$ _____ B) $y=0.67(4)^x$ _____ C) $y=x^4$

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4. Multiple Guess: Which of the following situations would best be modeled by exponential **decay**? Choose only one.

_____ The temperature of a food freezer remains at a constant temperature all the time. Let t = the number of hours since the temperature has been checked and f(t) = the temperature in the food freezer.

_____ The population of a city is averaging 4% growth per year. Let t = the number of years that have passed and f(t) = the city's population.

_____ As time passes, the radioactivity of an element sample declines. Let t = the number of years that have passed and f(t) = the mass that remains radioactive.

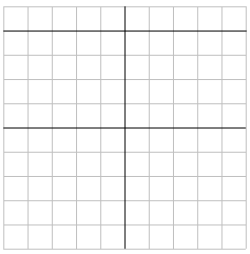
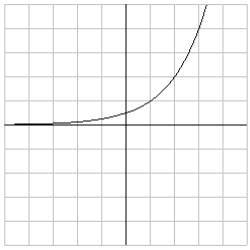
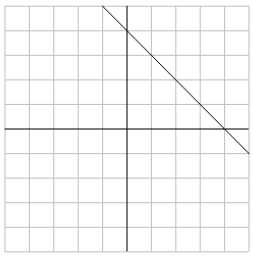
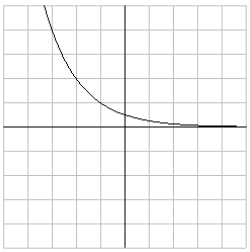
5. Multiple Guess: Which of the following best models the exponential regression for the table shown?

X	- 8	- 3	0	11
Y	1	3	4	14

A) $y = 2.9(.98)^x$ B) $y = 2.9(1.3)^x$ C) $y = 3.6\ (1.1)^x$ D) $y = 5.2\ (1.9)^x$

6. Multiple Guess: Which of the following graphs models exponential decay?

A) B) C) D)

7. Multiple Guess: The population of a city is growing at the rate of 0.4% per year. In 2007 it was 83,000 people. Which function represents the towns population "t" years after 2007?

A) $y = 83(1.04)^t$ B) $y = 83(1.4)^t$ C) $y = 83000(1.4)^t$ D) $y = 83000(1.004)^t$

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8. Evaluate each of the following.

A) $\log_7 1 =$ _____ B) $\log_5 \frac{1}{5} =$ _____ C) $\log_2 32 =$ _____ D) $\log_8 8 =$ _____

9. Multiple Guess: Which of the following shows the equation $a = b^v$ written in logarithmic form?

A) $b = \log_a v$ B) $b = \log_v a$ C) $a = \log_b v$ D) $v = \log_b a$ E) None of these

10. Multiple Guess: Which one of the following **best** describes the relationship that exists between exponential functions and logarithmic functions?

A) Exponential functions are reciprocals of logarithmic functions.

B) A logarithmic function graphs like a straight line if the exponential function is curved.

C) A logarithmic function is an inverse of an exponential function.

D) None of the above are true all of the time.

11. Using the properties of logarithms the expression $\log_2 7 + \log_2 6$ could be simplified to which of the following choices?

A) 42 B) $\log_2 13$ C) $\log_2 42$ D) $\frac{\log_2 7}{\log_2 6}$ E) None of these

12. Using the properties of logarithms, the expression $\log_b \frac{x^2 y}{z^3}$ could be expanded to be written as which of the following choices?

A) $A = Pe^{rt}$ B) $2\log_b x + \log_b y - 3\log_b z$

C) $2(\log_b x + \log_b y) - 3\log_b z$ D) $2\log_b x - \log_b y - 3\log_b z$

13 Which of the following correctly shows the change of base formula applied to $\log_b P$?

A) $\log_P b$ B) $\log \frac{P}{b}$ C) $\frac{\log_{10} P}{\log_{10} b}$ D) $\frac{\log_{10} b}{\log_{10} P}$ E) None of these