



ALLIANCE TED K. TAJIMA HIGH SCHOOL

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April 12, 2019

Hello,

I am writing to let you know that your student has an important exam on Monday, April 22, 2019. To ensure that he is ready for the test, he must complete the practice attached to this letter.

For video tutorials and additional practice, he can go to

tajimasolis.weebly.com → CH. 8 Review

Thank you.

Mr. Solis

PS: Please sign the line below to confirm you have read this message.

Hola,

Le escribo para informarle que su estudiante tiene un examen importante el lunes 22 de abril de 2019. Para asegurarse de que esté listo para el examen, debe completar la práctica adjunta a esta carta.

Para videos tutoriales y práctica adicional, él puede ir a

tajimasolis.weebly.com → CH. 8 Review

Gracias.

Mr. Solis

PS: Por favor, firme la línea a continuación para confirmar que ha leído este mensaje.

Parent Signature: _____

Assignment 52: Writing and Interpreting Exponential Functions

1. Given an initial amount of 2 increasing at a rate of 5%, write an exponential function of the form $y = a(b)^x$
2. Given a starting value of 16 that decreases exponentially by 25% every month, write a function of the form $y = a(b)^x$ to represent this scenario.

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3. If the population of a city over time can be modeled by the equation $y = 175,000(1.1)^x$, answer each of the following:

Is the population increasing or decreasing?

At what rate is the population increasing/decreasing?

What is the initial population of the city?

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4. If the value of a car is represented by the function $f(x) = 7800(0.92)^x$, answer each of the following:

At what rate is the value of the car increasing/decreasing?

What is the y-intercept for the graph of this?

What does the y-intercept represent?

If x represents the time in years, what's the value of the car after 4 years to the nearest dollar?

-
5. A pharmaceutical company is testing a new antibiotic. The number of bacteria present in a sample when the antibiotic is applied is 100,000. Each hour, the number of bacteria present decreases by half. The number of bacteria remaining $r(n)$ is an exponential function of the number n of hours since the antibiotic was applied. Which of the following equations best represents this situation?

A. $r(n) = 100,000(1.5)^n$ B. $r(n) = .5(100,000)^n$ C. $r(n) = 100,000(.5)^n$ D. $r(n) = 1.5(100,000)^n$

-
6. The population of a town over the past 10 years can be represented with the exponential equation $y = 2450(1.07)^x$. Choose True or False for each statement.

The initial population was 2450 with a growth rate of 1.07%.

True False

The initial population was 2450 with a growth rate of 7%.

True False

At the end of the first year, the population was about 2622.

True False

At the end of the second year, the population was about 2705.

True False

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7. The oak tree population in a certain area is 93% of the previous years population. The current number of oak trees is 315, which of the following functions best represents the oak tree population n years from now.

A. $t(n) = 0.93(r - 315)$ B. $t(n) = 315(0.93)^n$ C. $t(n) = 315(r - 0.93)$ D. $t(n) = 0.93(315)^n$

Review:

From previous lessons, name 2 characteristics of an exponential function.

1. _____

2. _____

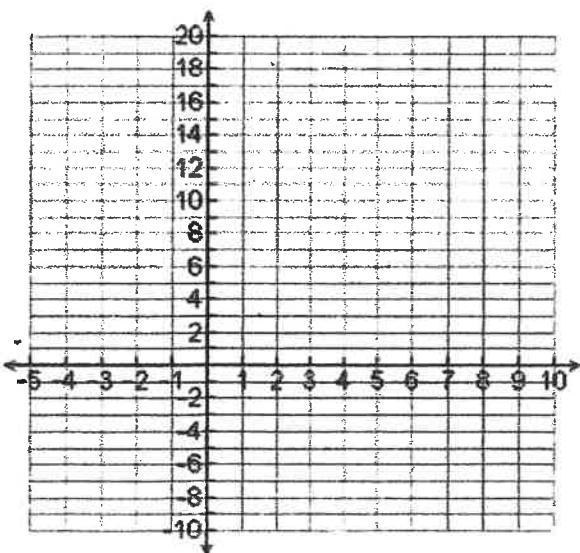


Any quantity that grows or decays by a fixed percent at regular intervals is said to have exponential growth or exponential decay.

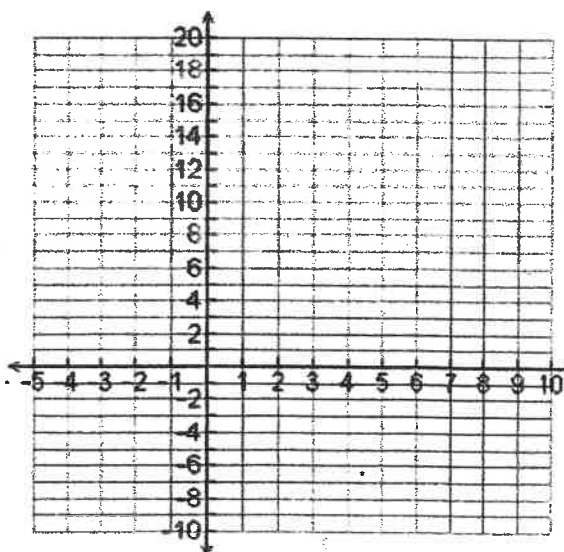
Exploring Exponential Growth and Decay Functions

Graph the following:

1. $y = 1(2)^x$



2. $y = 2(3)^x$

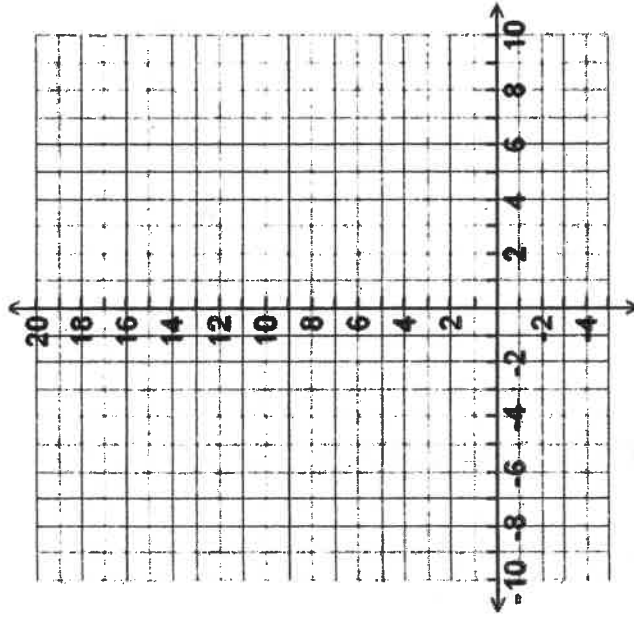


What do you notice about both graphs? _____

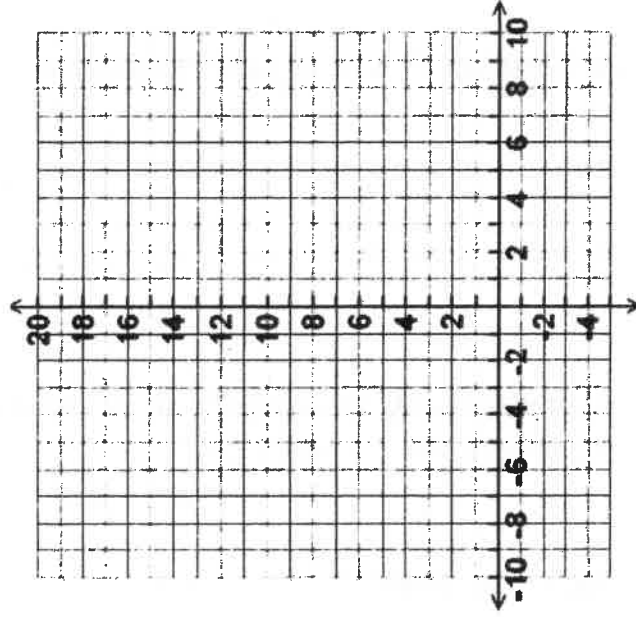
Exploring Growth and Decay Functions (continued)

Graph the following:

3. $y = 1\left(\frac{1}{2}\right)^x$



4. $y = 2(.4)^x$



What do you notice about both graphs? _____

Compare equations 1 & 2 with equations 3&4. What did you discover???

Name:
Date:

Tables of Exponential Functions

Here are some partially complete input-output tables

1.

x	0	1	2	3	4	5	6	7	8
y	1	2	4	8					

a. Fill in the table above.

b. To move to the right in the table, you multiply by _____.

c. The starting amount is _____.

d. The function formula is $y =$ _____

2.

x	0	1	2	3	4	5	6	7	8
y			25	125	625	3,125			

a. Fill in the table above.

b. To move to the right in the table, you multiply by _____.

c. The starting amount is _____.

d. The function formula is $y =$ _____

Name:

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3.

x	0	1	2	3	4	5	6	7	8
y					40	80	160		

a. Fill in the table above.

b. To move to the right in the table, you multiply by _____.

c. The starting amount is _____.

d. The function formula is $y =$ _____

4.

x	0	1	2	3	4	5	6	7	8
y		1		36	216				

a. Fill in the table above.

b. To move to the right in the table, you multiply by _____.

c. The starting amount is _____.

d. The function formula is $y =$ _____

The next three problems are harder because the # you multiply by is NOT a whole number.
To figure out what that number is, take a y and divide by the number directly before it.

5.

x	0	1	2	3	4	5	6	7	8
y	10	7.5	5.625						

a. Fill in the table above.

b. To move to the right in the table, you multiply by _____.

c. The starting amount is _____.

d. The function formula is $y =$ _____