keep scrolling to get a sneak peek!

Help your Algebra 2 students practice **writing exponential equations** given points. Students will be eager to get the self-checking benefits from this circuit activity!

WRITING OF EXPONENTIAL EQUATIONS
Differentiated Circuit Worksheet

Date: _____

EXPONENTIAL FUNCTIONS FROM POINTS CIRCUIT

is a route that starts and ends at the same place. Start in the first box labeled
oblem. Search through the remaining boxes for the answer you got for quest
at question. Continue until you have completed the questions and you are b
ion. Record your path below.

$3 \rightarrow 9 \rightarrow 2 \rightarrow 10 \rightarrow 4 \rightarrow 8 \rightarrow 5 \rightarrow 7$

$y = 4(3/2)^x$ # 7

Previous Answer: $y = 3 \cdot 6^x$

2. Write the exponential function given points (0, 5) and (2, 20). Is it growth or decay?

$20 = 5 \cdot b^2$

$\sqrt{4} = \sqrt{b^2}$ $b = 2$

$a = 5$ $b = 2$ $y = 5 \cdot 2^x$

Circle: (Growth) or Decay

ential function given the
1, 6). Is it growth or decay?

$= 3 \cdot b^1$

$= b$

2 $y = 3 \cdot 2^x$

or Decay

Previous Answer: $y = 8(3/2)^x$

6

4. Write the exponential functi
points (0, 2) and (3, 16). Is it gr

WRITING EXPONENTIAL FUNCTIONS FROM

Directions: A circuit is a route that starts and ends at the same place. Sta
1 and solve the problem. Search through the remaining boxes for the ans
1. Now complete that question. Continue until you have completed the que
to the original question. Record your path below.

$1 \rightarrow \_\_ \rightarrow \_\_ \rightarrow \_\_ \rightarrow \_\_ \rightarrow \_\_ \rightarrow \_\_$

Previous Answer: $y = 7 \cdot 3^x$

1. Write the exponential function given the points (0, 6) and (1, 18). Is it growth or decay?

Previous Answer: $y = 18$

2. Write the exponential f
points (1, 8) and (3, 32). Is

Previous Answer: $y = 2 \cdot 2^x$

3. Write the exponential function given the points (0, 36) and (1, 24). Is it growth or decay?

Previous Answer: $y = 4(5/2)^x$

4. Write the exponential functi
points

2 VERSIONS + ANSWER KEY INCLUDED

Math with Ms. Rivera

why do you need this?

Writing Exponential Equations Circuit

✏️ It's self-checking! Your students will know if they are correct or not.

✏️ 2 differentiated versions for all students practice this essential math skill.

Writing Exponential Equations Circuit *includes*:

Challenge: Show all your work in the space below.

A certain population of bacteria is being studied in a lab. After measuring the number of bacteria at different times, the data shows two points on the graph: (1, 18) and (3, 162). Assume the situation can be modeled by an exponential function of the form $y = ab^x$ where y is the number of bacteria and x is the time in hours.

a) Write the exponential equation that models the situation.

b) Does this situation represent growth or decay? How do you know?

c) Use your equation to predict the amount of bacteria when x = 0. Explain what this value means in the context of the situation.

How are you feeling about this topic? Circle one:

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Helpful Hints: Use these hints to help you solve the problems.

Helpful Steps:
Step 1: Use the y-intercept to find the a-value.
Step 2: Take the a-value and the other point and plug into the equation
$y = ab^x$ to find the b-value.
Step 3: Write the final equation in the form $y = ab^x$.

Reminders:
- a is the starting value.
- b > 1 means exponential growth
- 0 < b < 1 means exponential decay

How are you feeling about this topic? Circle one:

✅ 10 self-checking problems

✅ a detailed answer key

✅ a standard version with an extension question

✅ a basic version with helpful hints section

✅ student self assessment

Writing Exponential Equations Circuit

standards covered:

CCSS: HSA-CED.A.2

TEKs: A1.9.C

VA SOLs: F.AII.6.b

how this circuit resource works

Students can track their path at the top.

Students start with the first question.

Then search for their answer on the worksheet. Once the answer is found, students complete the problem below it.

The last question they answer should lead back to problem #1 to "close" the circuit.

Name: _____   Date: _____

WRITING EXPONENTIAL FUNCTIONS FROM POINTS CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → 1

Previous Answer: $y = 4(3/2)^x$ #____	Previous Answer: $y = 3 \cdot 6^x$ #____
1. Write the exponential function given the points (0, 3) and (1, 6). Is it growth or decay? a = ____ b = ____ y = _____ Circle: Growth or Decay	2. Write the exponential function given the points (0, 5) and (2, 20). Is it growth or decay? a = ____ b = ____ y = _____ Circle: Growth or Decay
Previous Answer: $y = 4(1/2)^x$ #____	Previous Answer: $y = 8(3/2)^x$ #____
3. Write the exponential function given the points (0, 4) and (2, 36). Is it growth or decay? a = ____ b = ____ y = _____ Circle: Growth or Decay	4. Write the exponential function given the points (0, 2) and (3, 16). Is it growth or decay? a = ____ b = ____ y = _____ Circle: Growth or Decay

This is a great activity to use when reviewing how to write exponential equations given two points.

It can be used right after teaching the concept or as homework.

This is also a **substitute-friendly** assignment!

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check it out!

Rational Expression Operations - Addition & Subtraction

Directions: Answer each question and type the question number with the matching answer in the answer column to the right.

#	Question		Answer	Type the matching question numbers here
1	$\frac{5}{x} + \frac{3}{x+1}$		$\frac{2x+1}{x+2}$	
2	$\frac{2}{x+4} - \frac{x^2}{x^2-16}$		$-\frac{1}{x^2-1}$	
3	$\frac{x+2}{x^2+4x+4} + \frac{2x}{x+2}$		$\frac{2x^2+2x+5}{x^2+x-2}$	
4	$\frac{x}{x-2} + \frac{3}{x-1}$		$\frac{-x^2+2x-8}{x^2-16}$	
5	$\frac{x}{4x+8} - \frac{1}{x^2+2x}$		$\frac{8x+5}{x^2+1}$	
6	$\frac{x+2}{x-1} + \frac{x-1}{x+2}$		$\frac{x^2-3x+7}{x^2-4}$	
7	$\frac{2x+1}{x^2-4} + \frac{x-3}{x+2}$		$\frac{x^2+2x-6}{x^2-3x+2}$	
8	$\frac{x^2+2x}{x^2-1} - \frac{x+1}{x-1}$		$\frac{x-2}{4x}$	

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hey there!

My name is Malia and I'm passionate about making learning and practicing math fun. I love creating engaging math resources for my students and I hope your students enjoy this activity too!

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