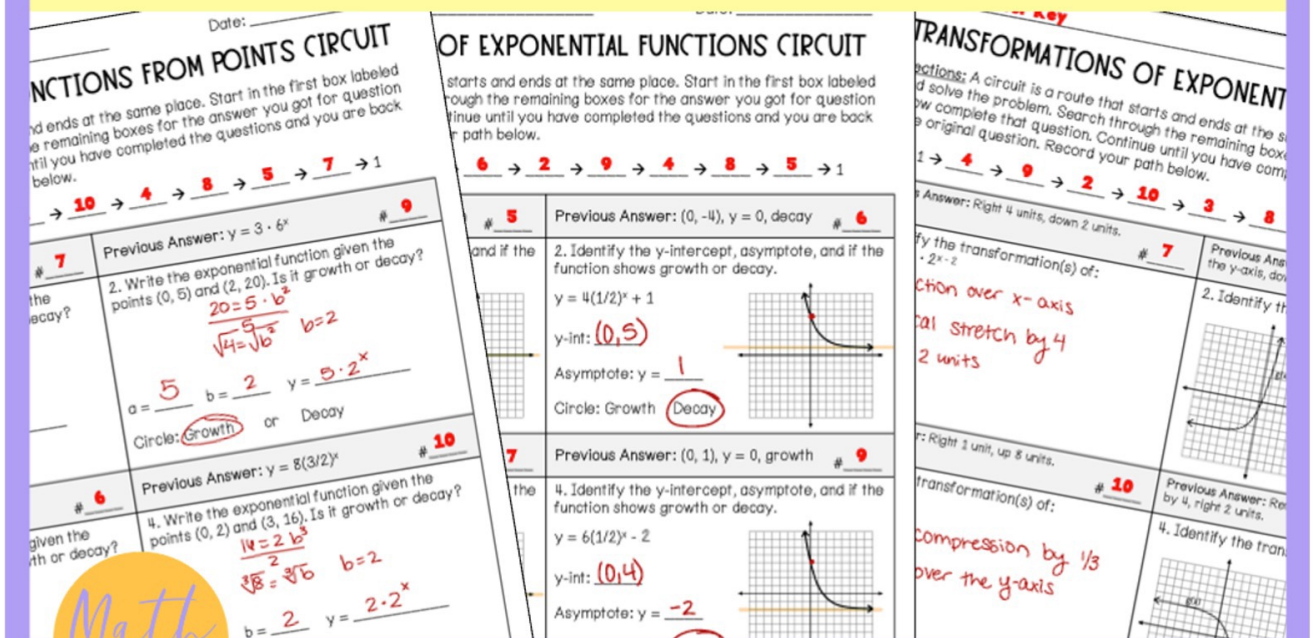
keep scrolling to get a sneak peek!

Help your Algebra students practice applying various skills to **exponential functions.**

This bundle of circuit worksheets will help your students review these skills throughout the unit, while also being able to self check their work!

EXPONENTIAL FUNCTIONS DIFFERENTIATED CIRCUITS

Unit Worksheet Bundle



4 TOPICS + 2 Versions Each + Answer Keys

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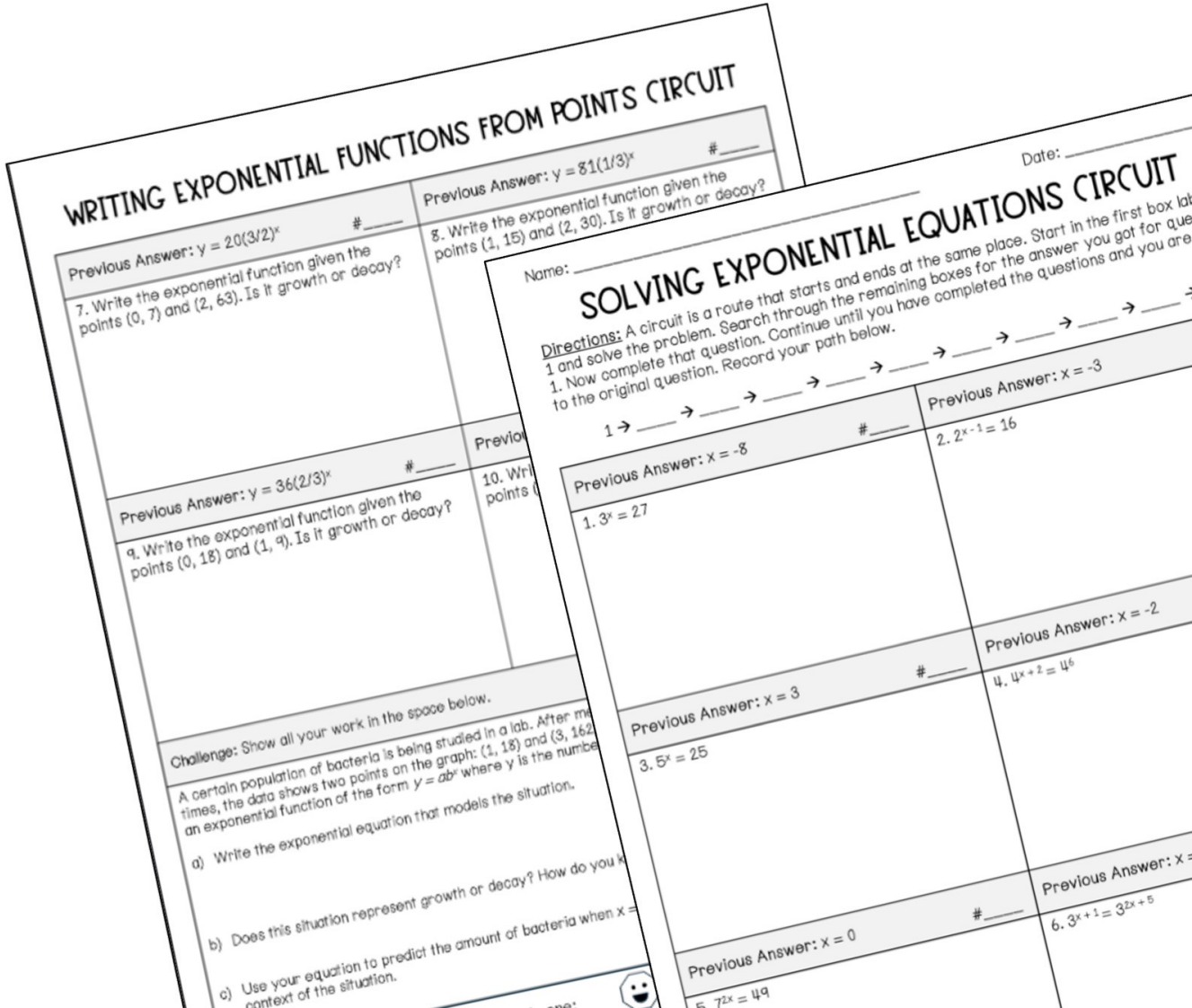
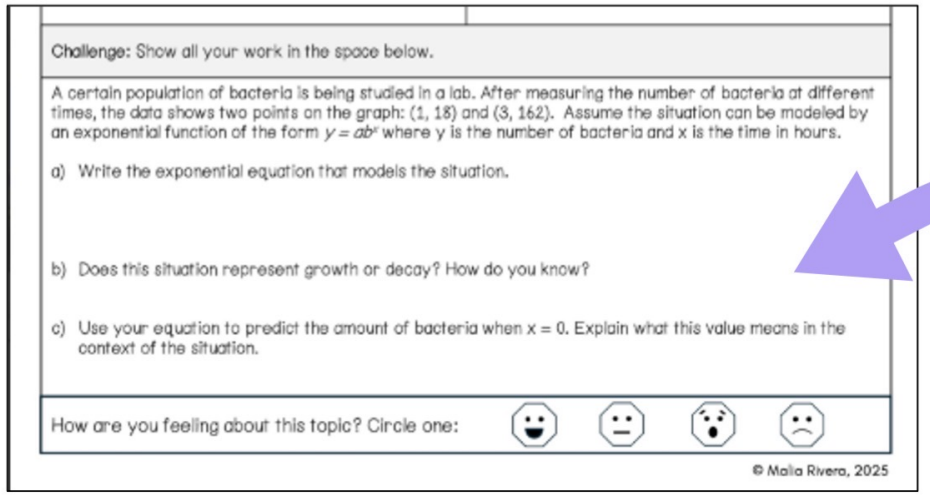
Why do you need this?

- 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.

Exponential Functions Unit Circuit Worksheets



Each Exponential Functions Circuit *includes*:



Challenge: Show all your work in the space below.

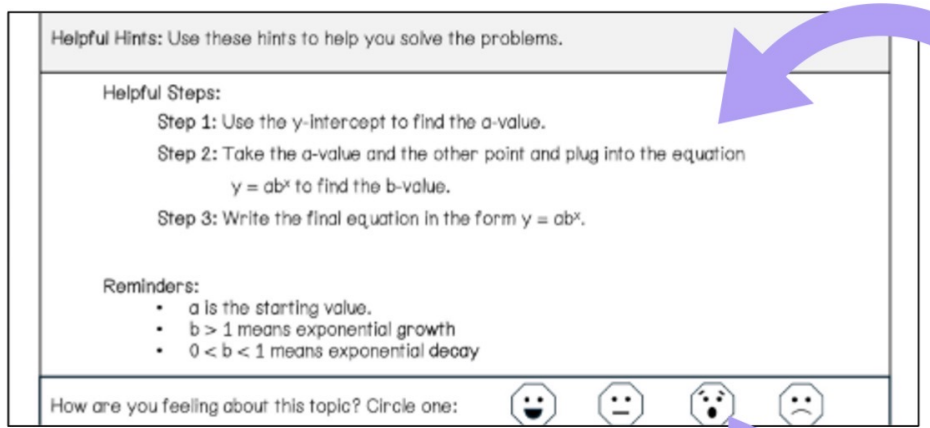
A certain population of bacteria is being studied in a lab. After measuring the number of bacteria at different times, the data shows two points on the graph: (1, 18) and (3, 162). Assume the situation can be modeled by an exponential function of the form $y = ab^x$ where y is the number of bacteria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



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

Solving Systems of Equations Circuit

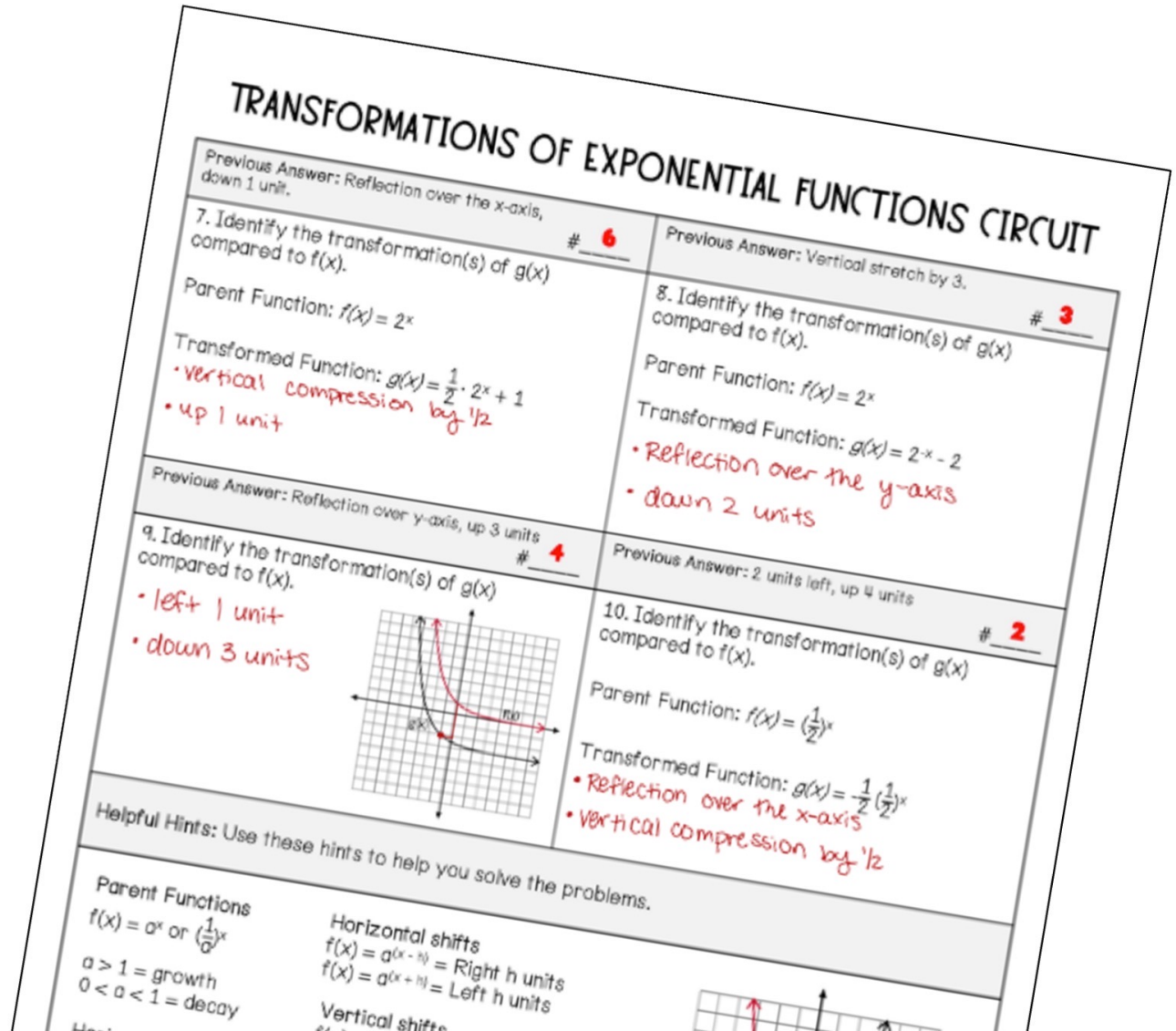
skills covered:

Identifying Characteristics

Identifying Transformations

Writing Equations from points

Solving (no logs)



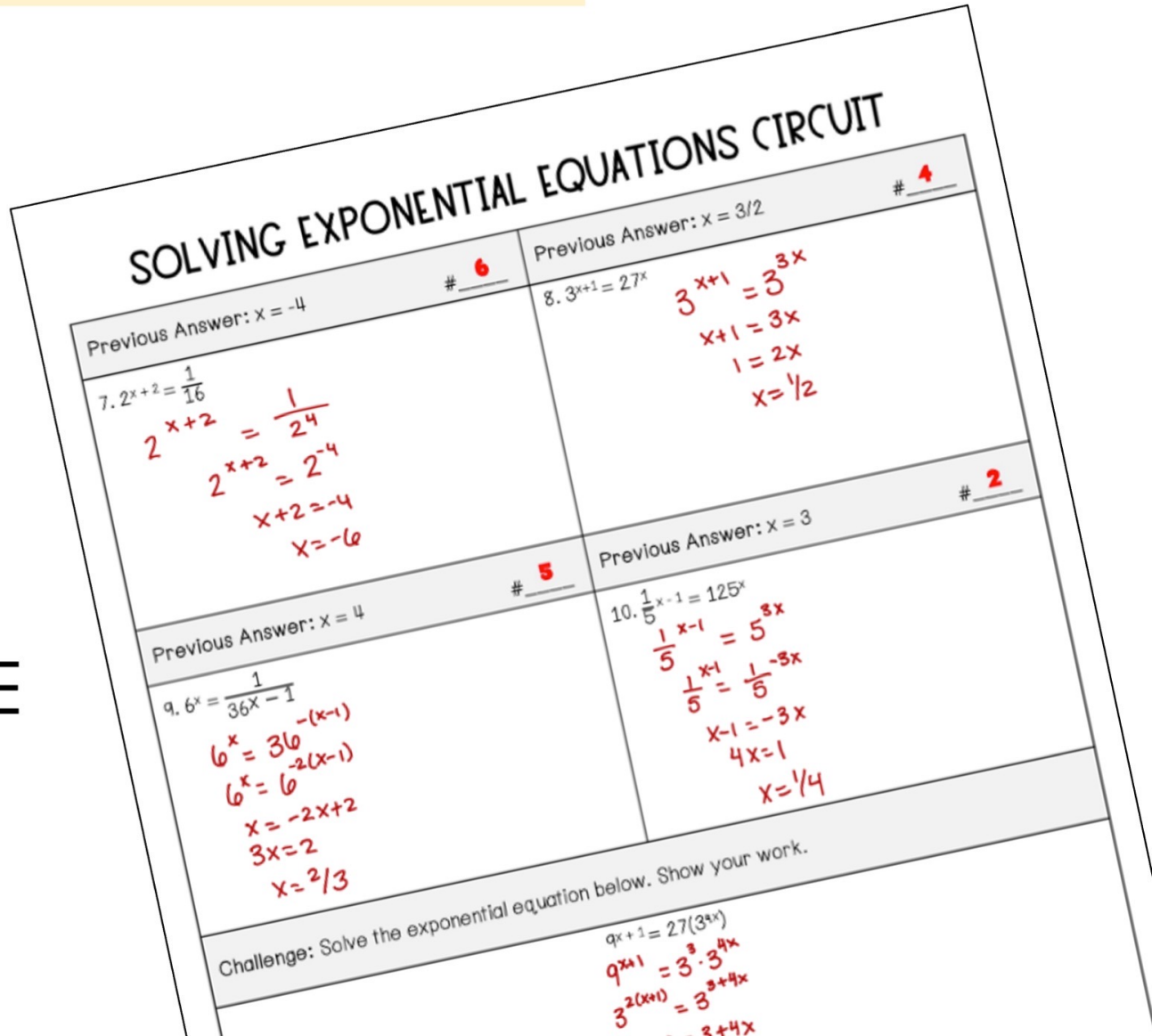
Exponential Functions Unit Circuits Bundle

standards covered:

CCSS: HSF-BF.B.3, HSF-IF.C.7, HSF-IF.B.4, HSA-CED.A.2, HSF-BF.B.5

TEKs: A1.9.C, A2.2.A, A2.5.CDE

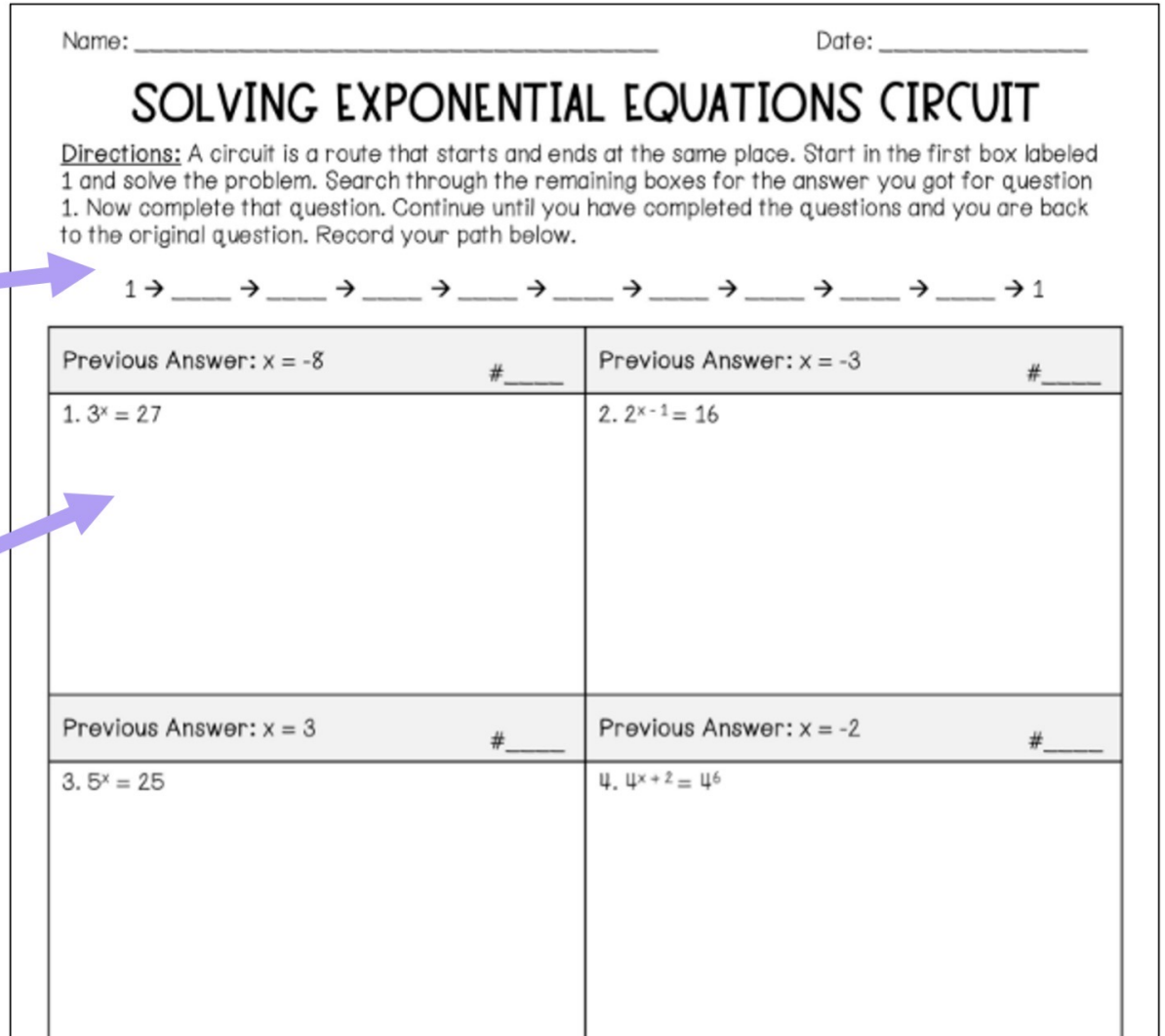
VA SOLs: F.AII.6.b, F.AII.7



how this circuit resource works

Students can track their path at the top.

Students start with the first question.



Name: _____ Date: _____

SOLVING EXPONENTIAL EQUATIONS 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.

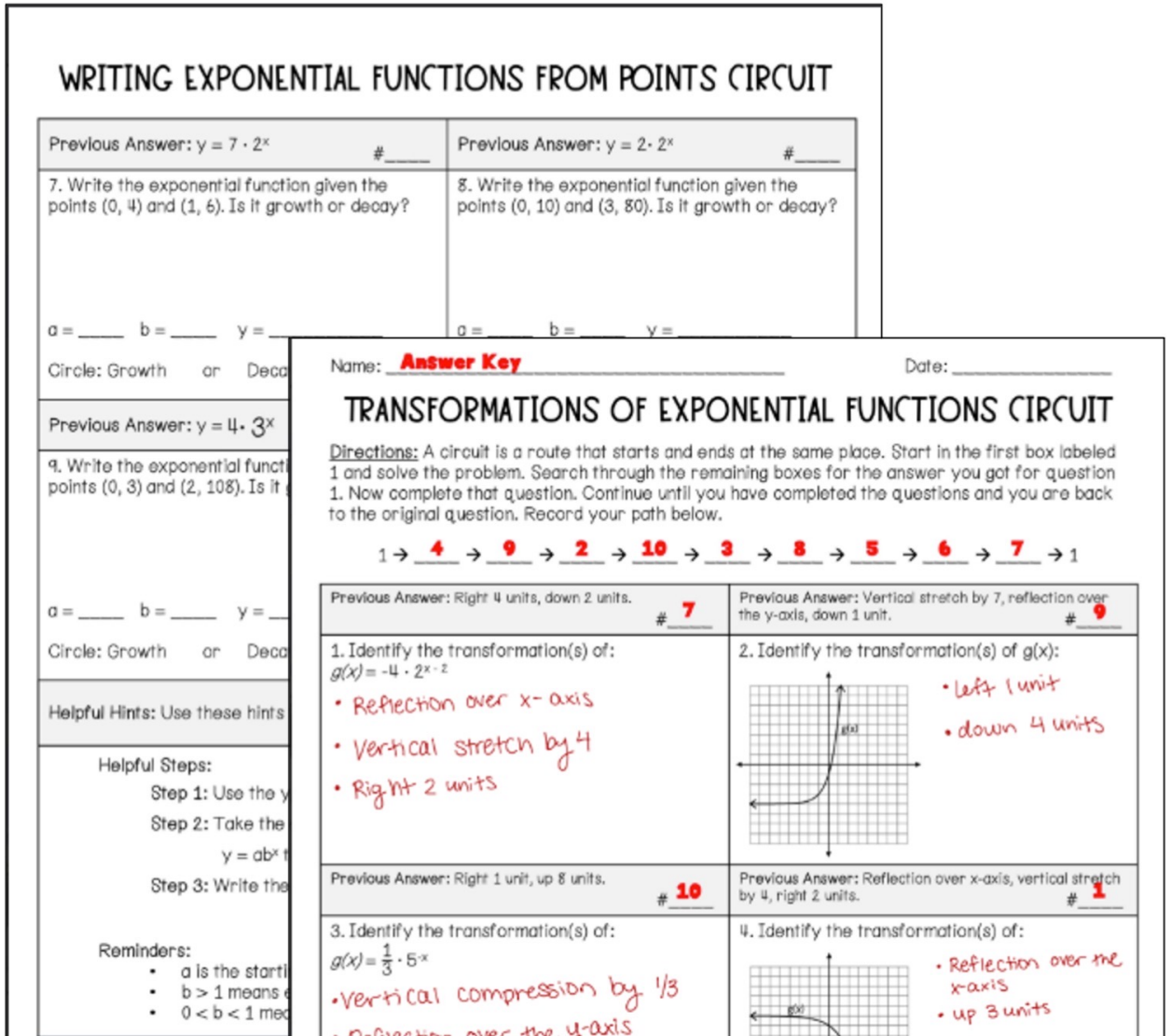
1 → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → 1

Previous Answer: x = -8 #____	Previous Answer: x = -3 #____
1. $3^x = 27$	2. $2^{x-1} = 16$
Previous Answer: x = 3 #____	Previous Answer: x = -2 #____
3. $5^x = 25$	4. $4^{x+2} = 4^6$

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.

how to use this resource



WRITING EXPONENTIAL FUNCTIONS FROM POINTS CIRCUIT

Previous Answer: $y = 7 \cdot 2^x$ #____	Previous Answer: $y = 2 \cdot 2^x$ #____
7. Write the exponential function given the points (0, 4) and (1, 6). Is it growth or decay?	8. Write the exponential function given the points (0, 10) and (3, 80). Is it growth or decay?
a = ____ b = ____ y = ____	a = ____ b = ____ y = ____
Circle: Growth or Deca	
Previous Answer: $y = 4 \cdot 3^x$	
9. Write the exponential functi points (0, 3) and (2, 108). Is it	
a = ____ b = ____ y =	
Circle: Growth or Deca	
Helpful Hints: Use these hints	
Helpful Steps: Step 1: Use the y Step 2: Take the $y = ab^x$ t Step 3: Write the	
Reminders: • a is the starti • b > 1 means • 0 < b < 1 mea	

Name: Answer Key Date: _____

TRANSFORMATIONS OF EXPONENTIAL FUNCTIONS 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 → 4 → 9 → 2 → 10 → 3 → 8 → 5 → 6 → 7 → 1

Previous Answer: Right 4 units, down 2 units. #7	Previous Answer: Vertical stretch by 7, reflection over the y-axis, down 1 unit. #9
1. Identify the transformation(s) of: $g(x) = -4 \cdot 2^{x-2}$ • Reflection over x-axis • Vertical stretch by 4 • Right 2 units	2. Identify the transformation(s) of g(x): • Left 1 unit • down 4 units
Previous Answer: Right 1 unit, up 8 units. #10	**Previous Answer:** Reflection over x-axis, vertical stretch by 4, right 2 units. #1
3. Identify the transformation(s) of: $g(x) = \frac{1}{3} \cdot 5^{-x}$ • Vertical compression by 1/3 • Reflection over the y-axis	4. Identify the transformation(s) of: • Reflection over the x-axis • up 3 units

This is a great activity to use when reviewing how to solve systems of equations.

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

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

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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