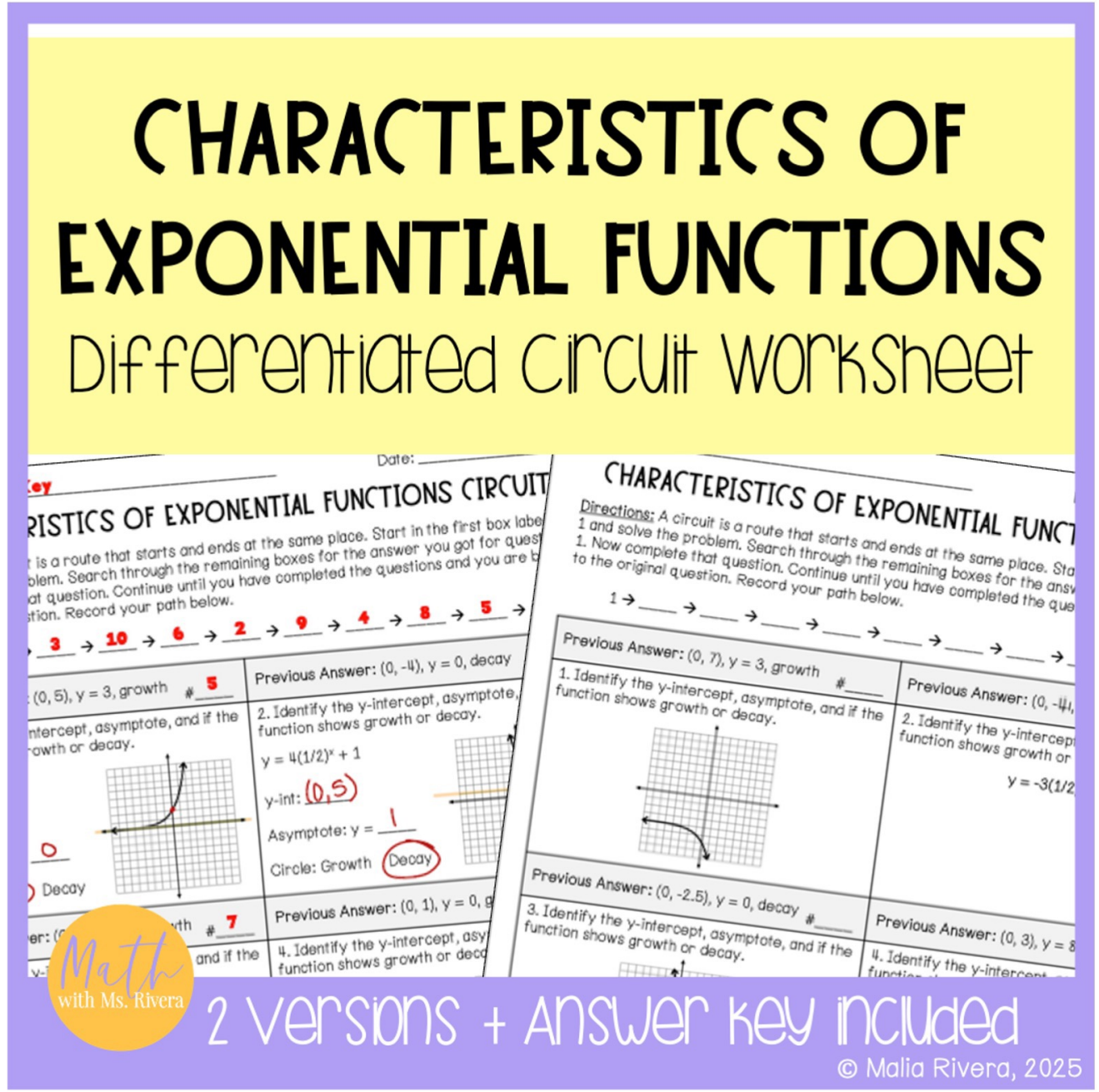
keep scrolling to get a sneak peek!

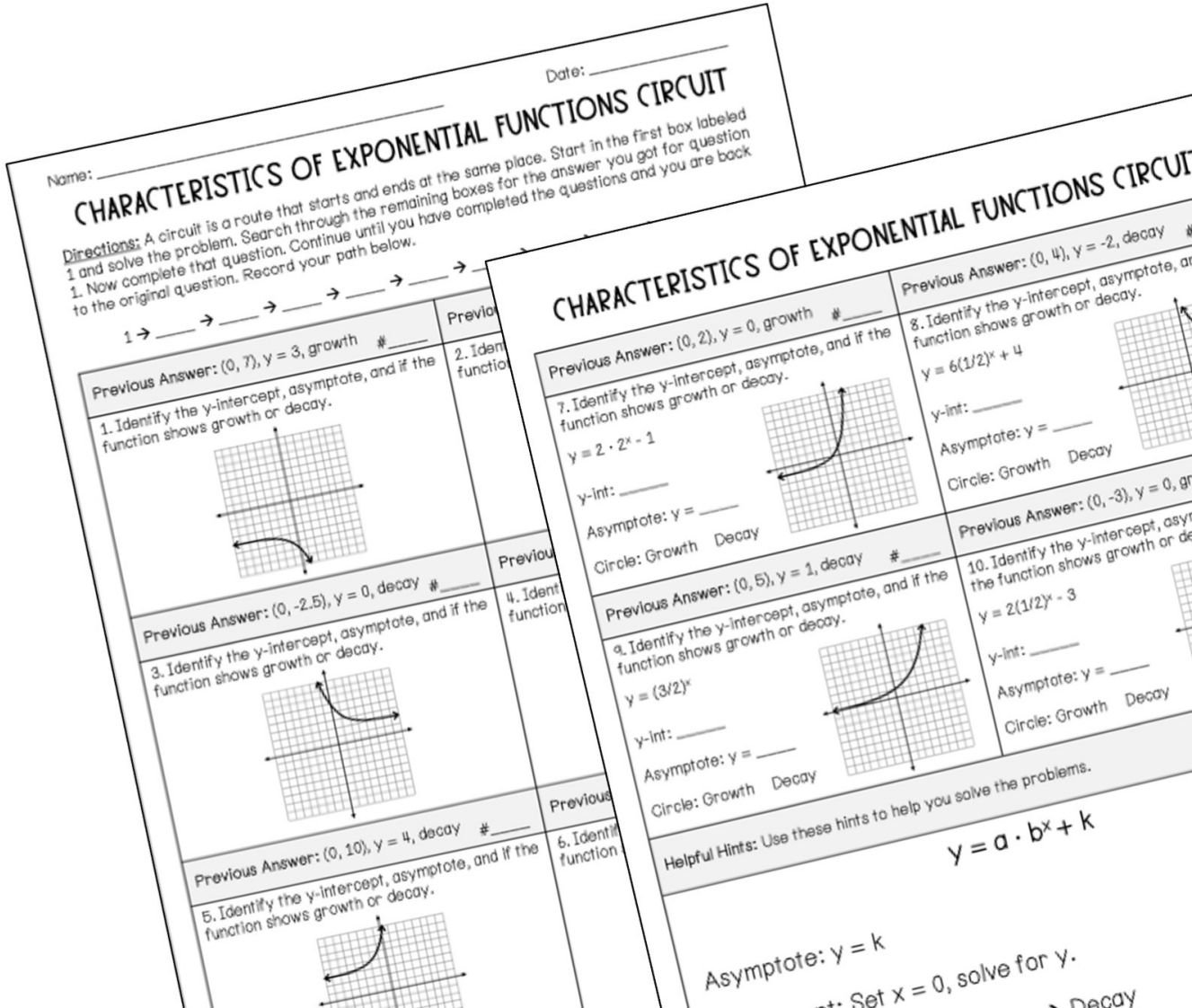
Help your Algebra 2 students practice **identifying characteristics of exponential functions**. Students will be eager to get the self-checking benefits from this circuit activity!



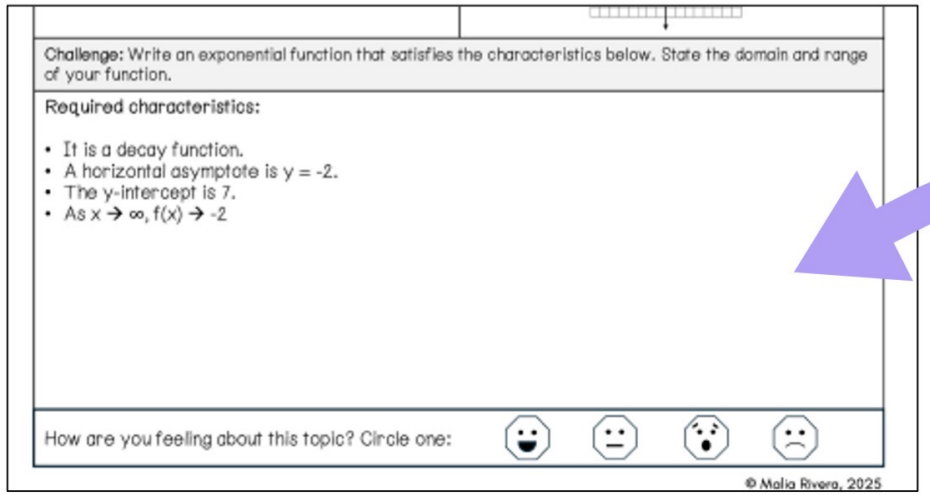
Why do you need this?

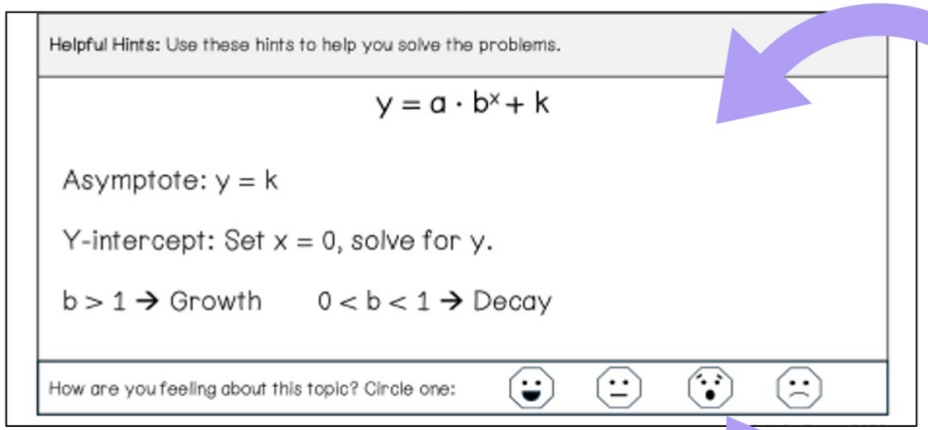
- It's self-checking! Your students will know if they are correct or not.
- 2 differentiated versions for all students practice this essential math skill.

Characteristics of Exponential Functions Circuit



Characteristics of Exponential Functions *includes*:





✅ 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

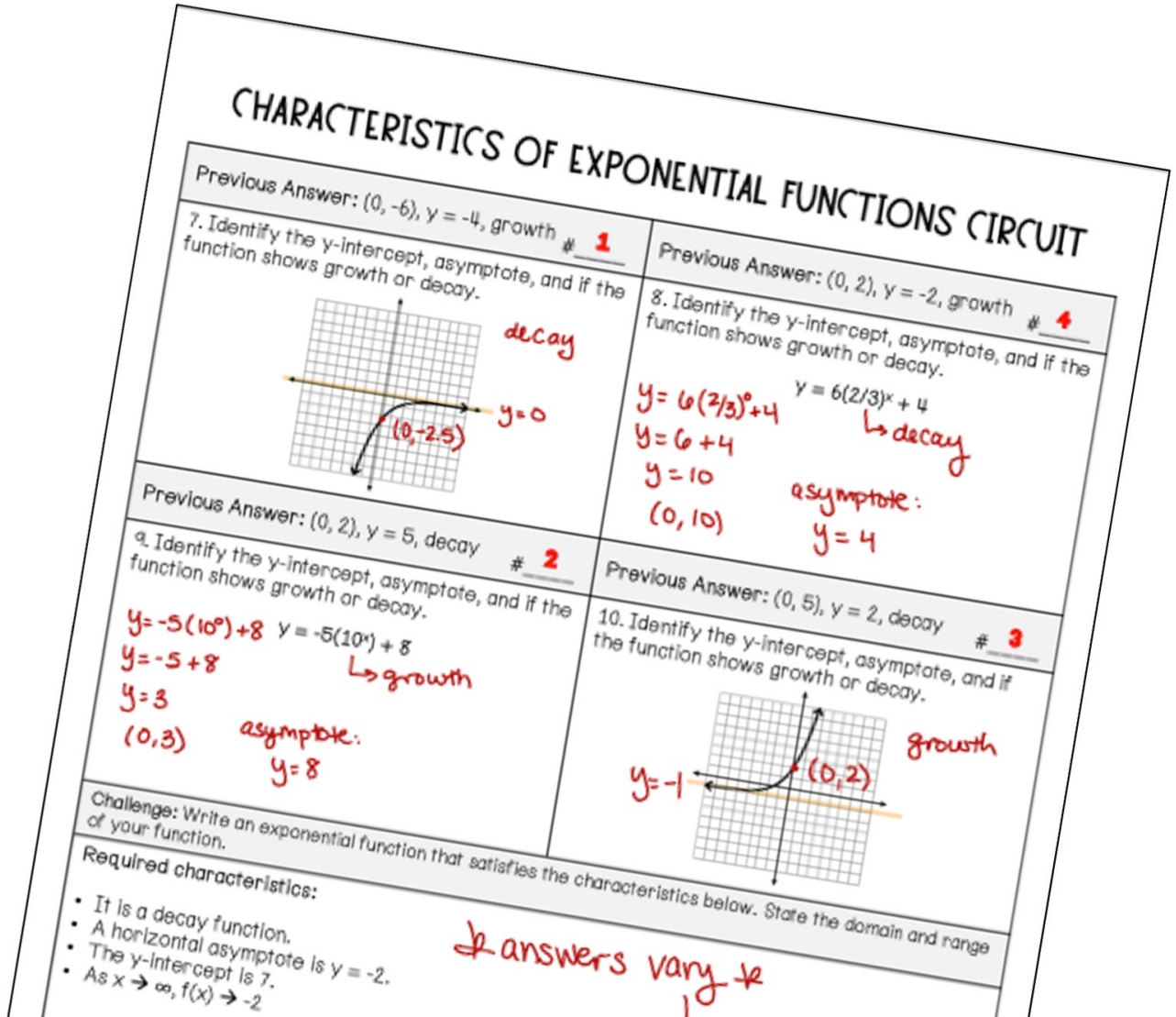
Characteristics of Exponential Functions

standards covered:

CCSS: HSF-BF.B.4

TEKs: A2.2.A

VA SOLs: F.AII.7


CHARACTERISTICS OF EXPONENTIAL FUNCTIONS CIRCUIT

Previous Answer: (0, -6), y = -4, growth # 1

7. Identify the y-intercept, asymptote, and if the function shows growth or decay.

decay

y = 0

(0, -2.5)

Previous Answer: (0, 2), y = -2, growth # 4

8. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = 6(2/3)^x + 4$

$y = 6(2/3)^0 + 4$

$y = 6 + 4$

$y = 10$

(0, 10)

↳ decay

asymptote: $y = 4$

Previous Answer: (0, 2), y = 5, decay # 2

9. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = -5(10^0) + 8$ $y = -5(10^x) + 8$

$y = -5 + 8$

$y = 3$

(0, 3)

↳ growth

asymptote: $y = 8$

Previous Answer: (0, 5), y = 2, decay # 3

10. Identify the y-intercept, asymptote, and if the function shows growth or decay.

y = -1

(0, 2)

growth

Challenge: Write an exponential function that satisfies the characteristics below. State the domain and range of your function.

Required characteristics:

- It is a decay function.
- A horizontal asymptote is $y = -2$.
- The y-intercept is 7.
- As $x \to \infty$, $f(x) \to -2$

answers vary

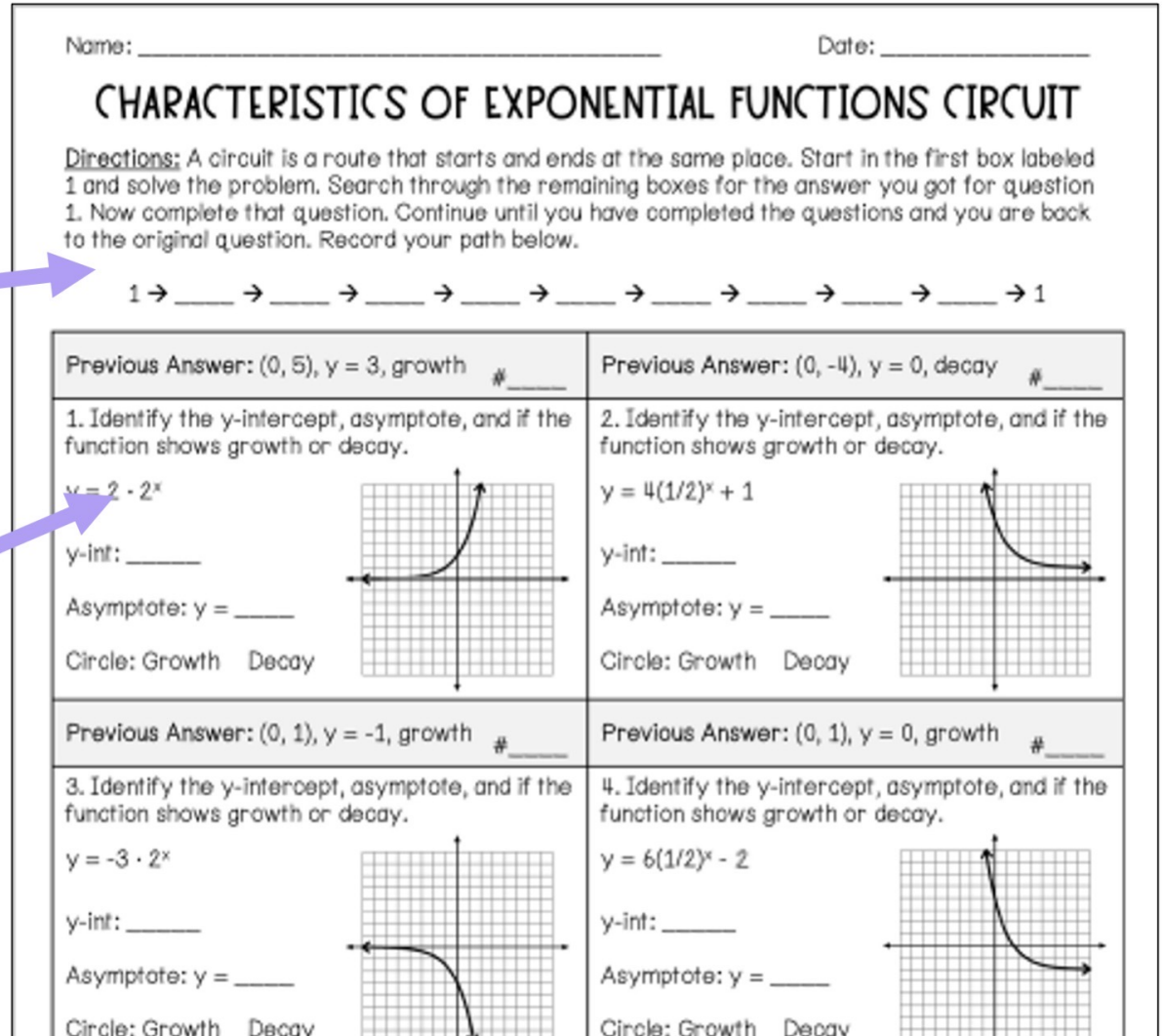
how this circuit resource works

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: _____

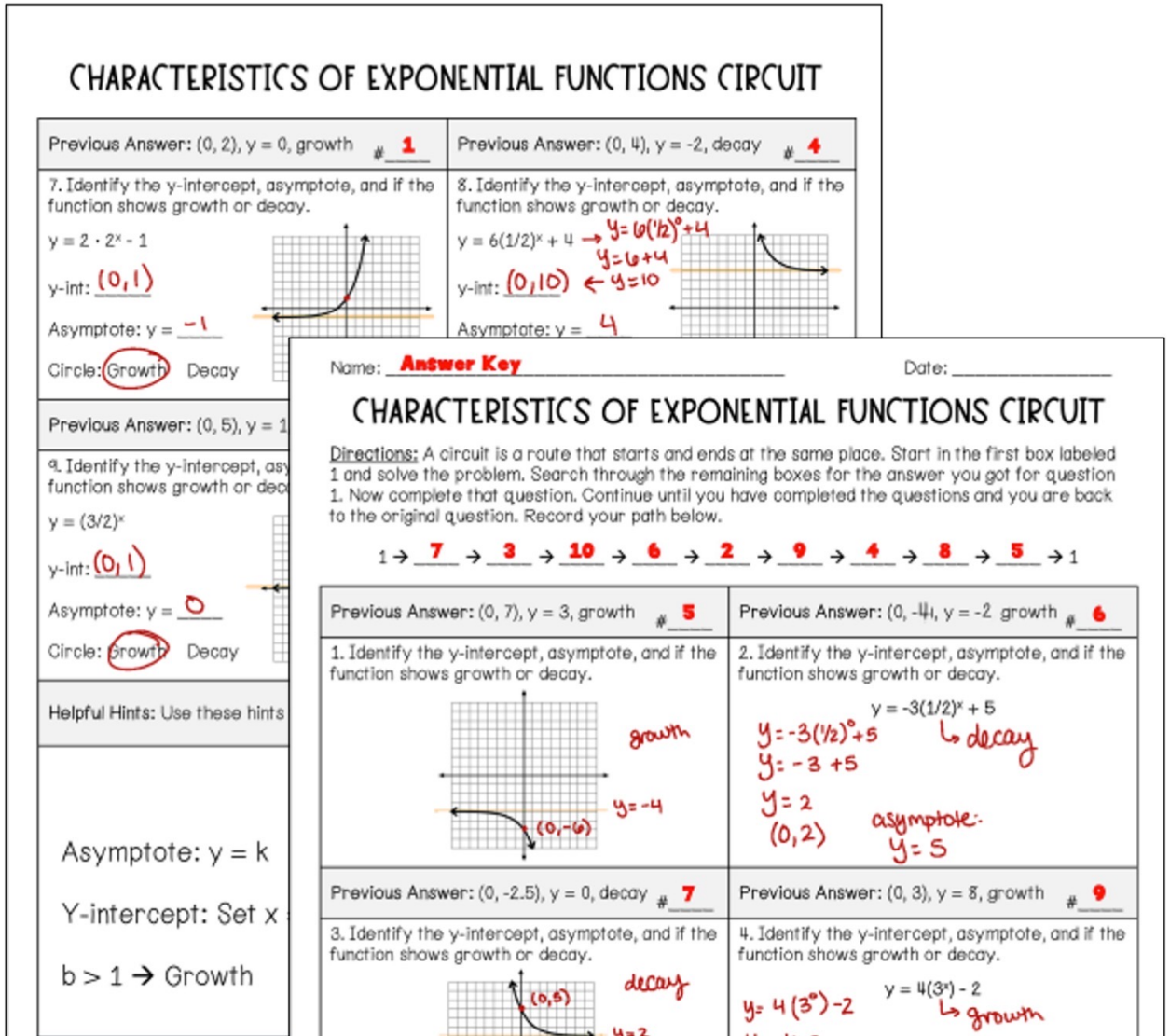
CHARACTERISTICS OF EXPONENTIAL FUNCTIONS CIRCUIT

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

Previous Answer: (0, 5), y = 3, growth #____	Previous Answer: (0, -4), y = 0, decay #____
1. Identify the y-intercept, asymptote, and if the function shows growth or decay. $y = 2 \cdot 2^x$ y-int: _____ Asymptote: y = _____ Circle: Growth Decay	2. Identify the y-intercept, asymptote, and if the function shows growth or decay. $y = 4(1/2)^x + 1$ y-int: _____ Asymptote: y = _____ Circle: Growth Decay
Previous Answer: (0, 1), y = -1, growth #____	Previous Answer: (0, 1), y = 0, growth #____
3. Identify the y-intercept, asymptote, and if the function shows growth or decay. $y = -3 \cdot 2^x$ y-int: _____ Asymptote: y = _____ Circle: Growth Decay	4. Identify the y-intercept, asymptote, and if the function shows growth or decay. $y = 6(1/2)^x - 2$ y-int: _____ Asymptote: y = _____ Circle: Growth Decay

how to use this resource



CHARACTERISTICS OF EXPONENTIAL FUNCTIONS CIRCUIT

Previous Answer: (0, 2), y = 0, growth # 1

7. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = 2 \cdot 2^x - 1$

y-int: (0, 1)

Asymptote: y = -1

Circle: Growth Decay

Previous Answer: (0, 4), y = -2, decay # 4

8. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = 6(1/2)^x + 4$ → $y = 6(\frac{1}{2})^0 + 4$, $y = 6 + 4$, $y = 10$

y-int: (0, 10)

Asymptote: y = 4

Previous Answer: (0, 5), y = 1

9. Identify the y-intercept, asy
function shows growth or dec

$y = (3/2)^x$

y-int: (0, 1)

Asymptote: y = 0

Circle: Growth Decay

Helpful Hints: Use these hints

Asymptote: y = k

Y-intercept: Set x

b > 1 → Growth

Name: Answer Key Date: _____

CHARACTERISTICS 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 → 7 → 3 → 10 → 6 → 2 → 9 → 4 → 8 → 5 → 1

Previous Answer: (0, 7), y = 3, growth # 5

1. Identify the y-intercept, asymptote, and if the function shows growth or decay.

growth

y = -4

(0, -6)

Previous Answer: (0, -4), y = -2 growth # 6

2. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = -3(1/2)^x + 5$

$y = -3(\frac{1}{2})^0 + 5$ → decay

$y = -3 + 5$

$y = 2$

(0, 2)

asymptote: y = 5

Previous Answer: (0, -2.5), y = 0, decay # 7

3. Identify the y-intercept, asymptote, and if the function shows growth or decay.

decay

(0, 5)

Previous Answer: (0, 3), y = 8, growth # 9

4. Identify the y-intercept, asymptote, and if the function shows growth or decay.

$y = 4(3^x) - 2$

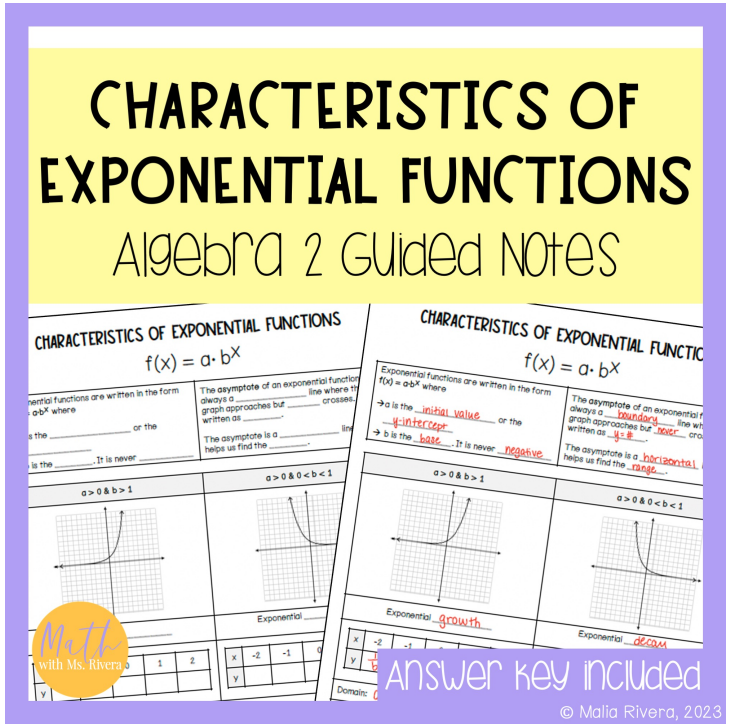
$y = 4(3^0) - 2$ → growth

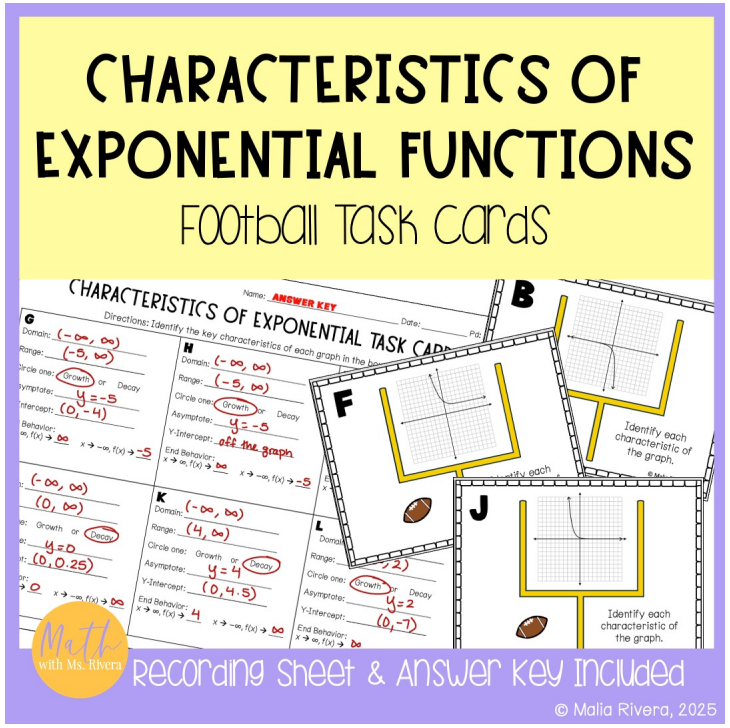
This is a great activity to use when reviewing identifying characteristics of exponential functions from graphs & equations.

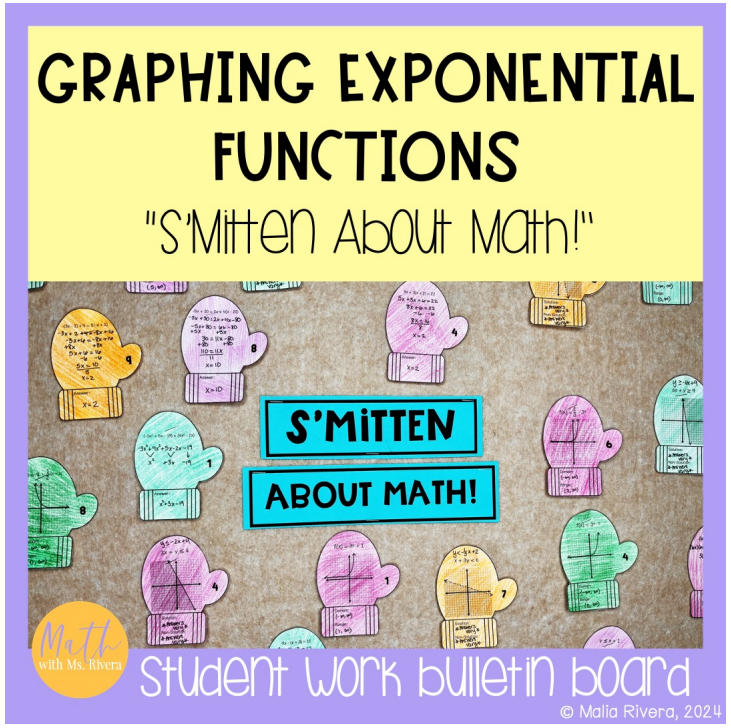
It can be used right after teaching the concept or as homework.

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

You may also *enjoy*...







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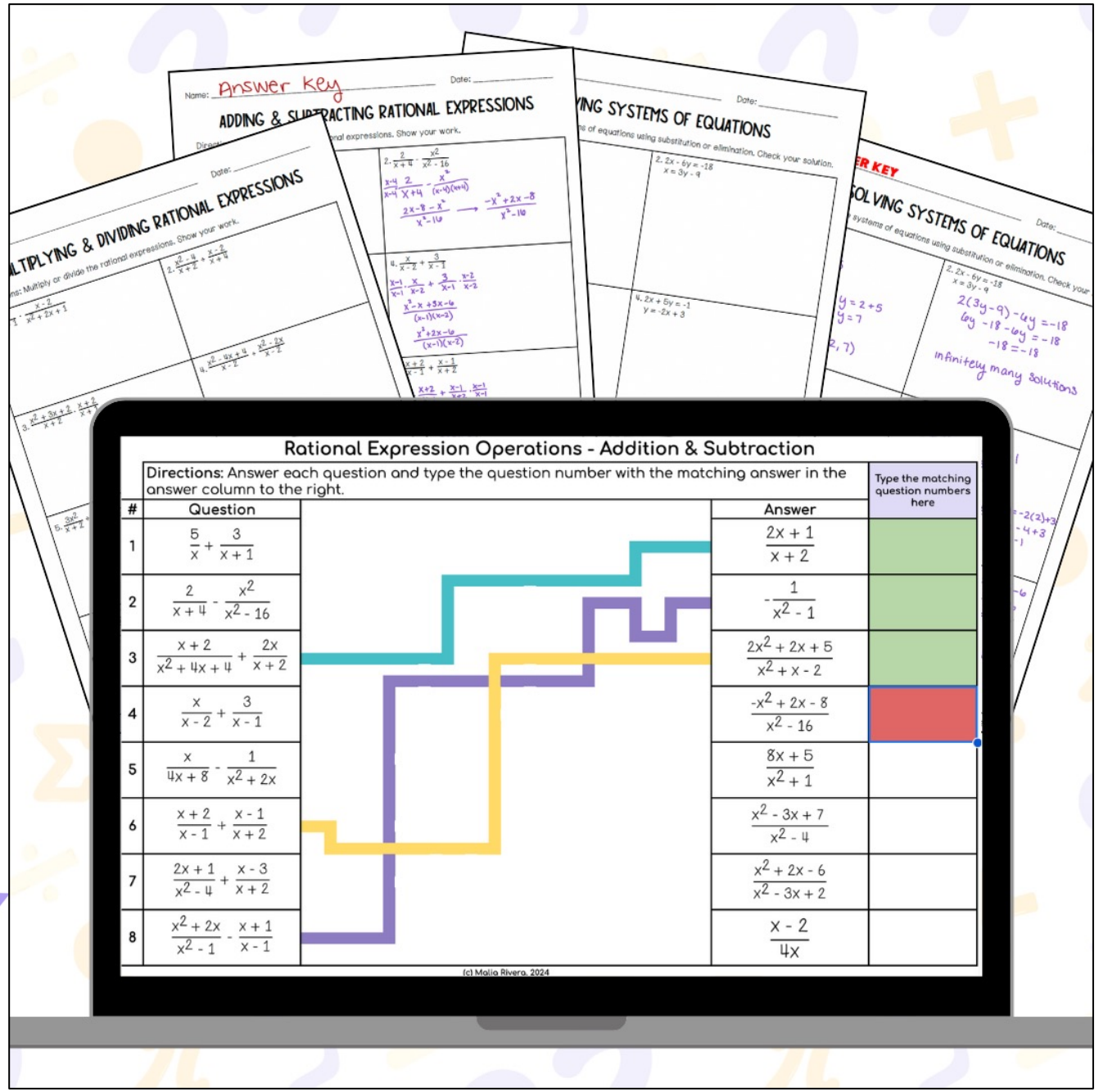

hey there!

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