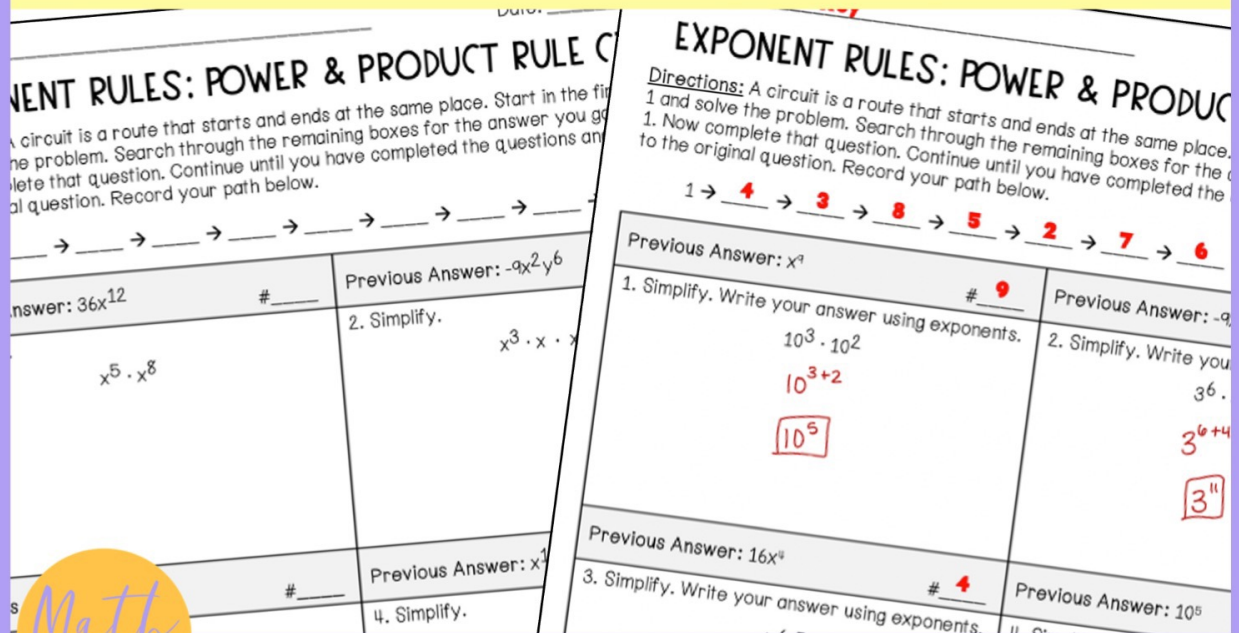
keep scrolling to get a sneak peek!

Help your Algebra students practice applying the product & power exponent rules. Students will be eager to get the self-checking benefits from this circuit activity!

EXPONENT RULES: PRODUCT & POWER

Differentiated Circuit Worksheet



Math with Ms. Rivera

2 versions + answer key included

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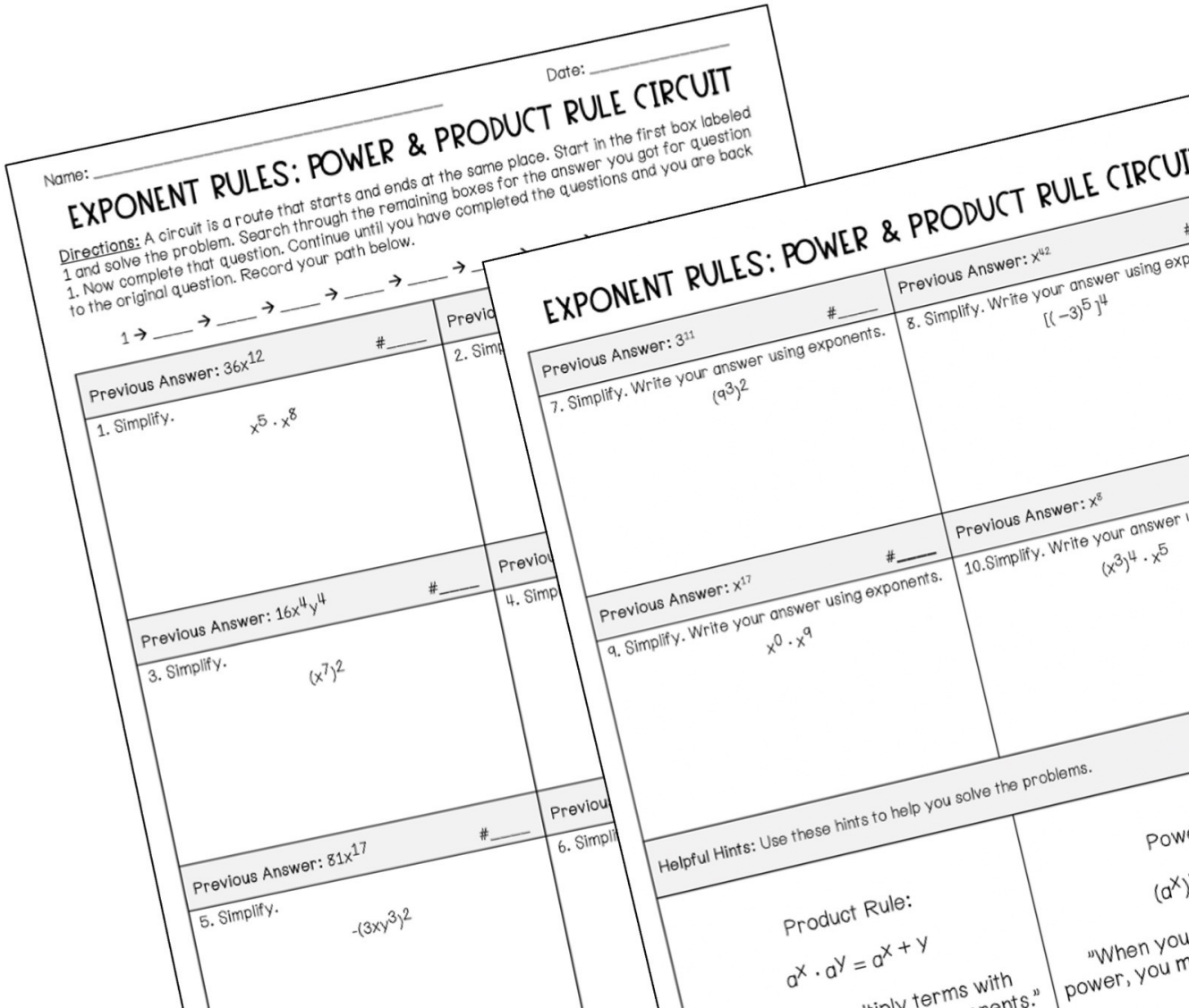
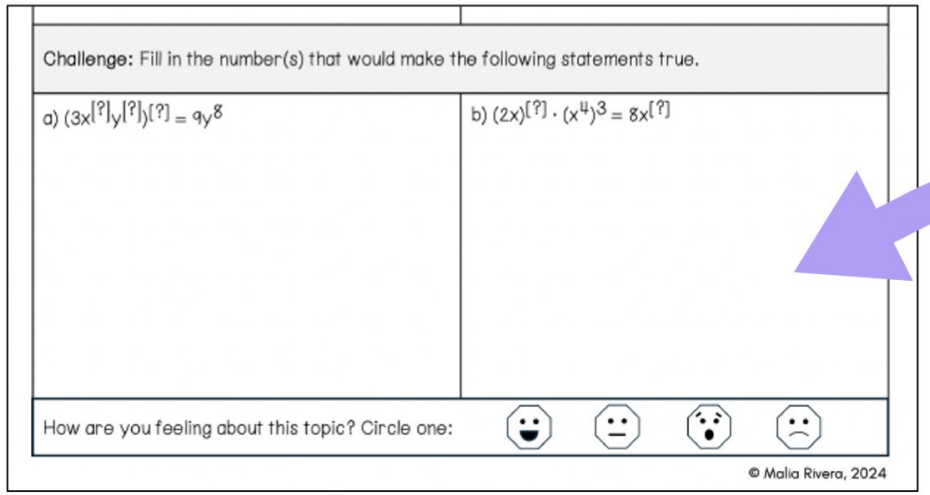
why do you need this?

- 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.

Exponent Rules: Product & Power Rule Circuit



Exponent Rules: Product & Power Rule *includes*:

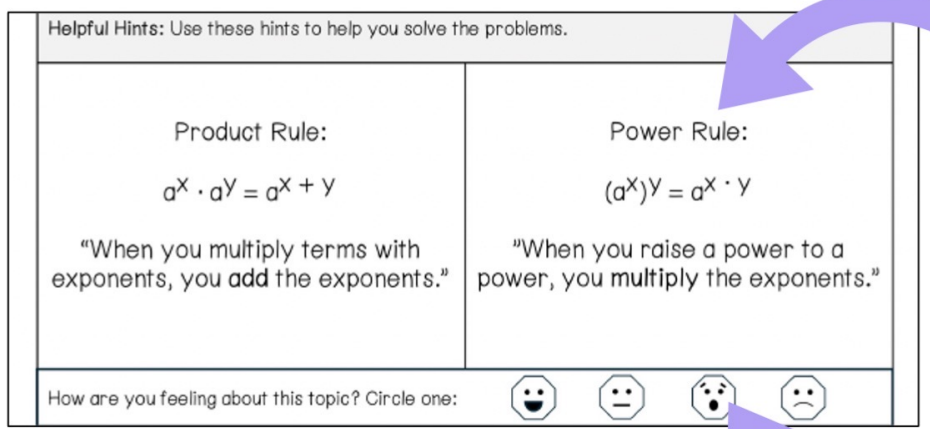


Challenge: Fill in the number(s) that would make the following statements true.

a) $(3x^{[?]}y^{[?]})^{[?]} = 9y^8$

b) $(2x)^{[?]} \cdot (x^4)^3 = 8x^{[?]}$

How are you feeling about this topic? Circle one:



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

Product Rule:

$a^x \cdot a^y = a^{x+y}$

"When you multiply terms with exponents, you **add** the exponents."

Power Rule:

$(a^x)^y = a^{x \cdot y}$

"When you raise a power to a power, you **multiply** the exponents."

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

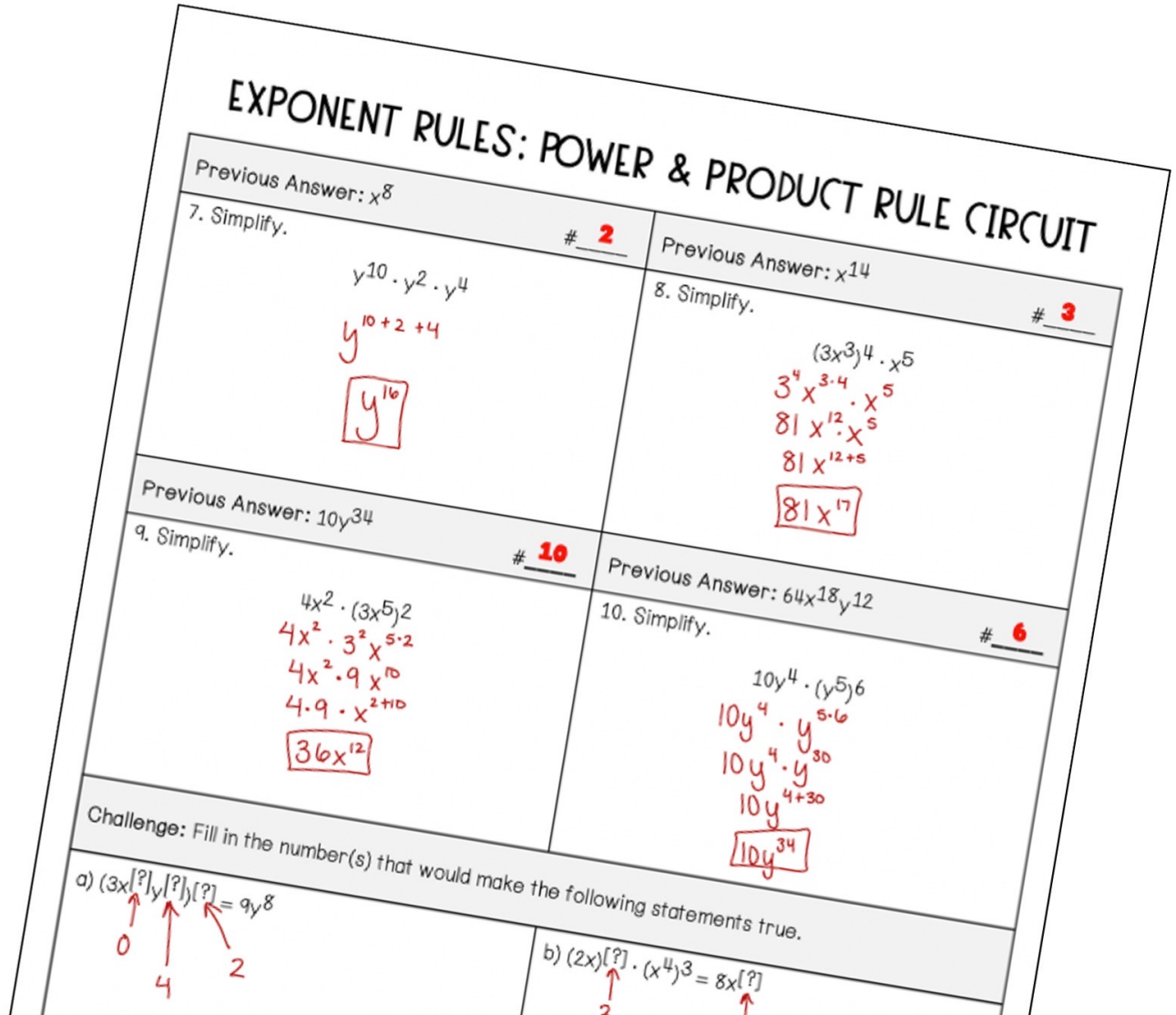
Exponent Rules: Product & Power Rules

standards covered:

CCSS: 8.EE.A.1

TEKs: A1.11.B

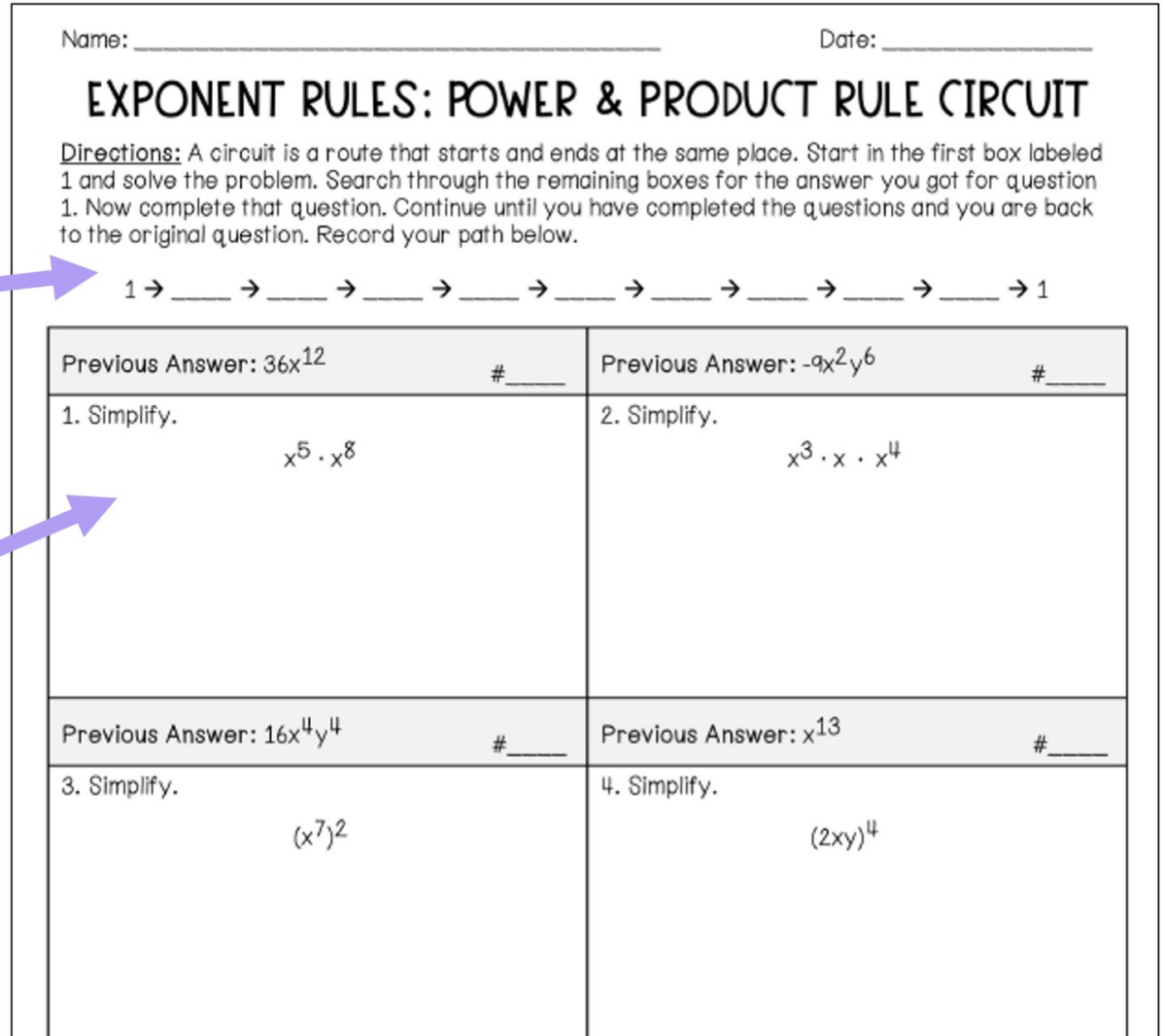
VA SOLs: EO.A.2.a



how this circuit resource works

Students can track their path at the top.

Students start with the first question.



Name: _____ Date: _____

EXPONENT RULES: POWER & PRODUCT RULE 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.

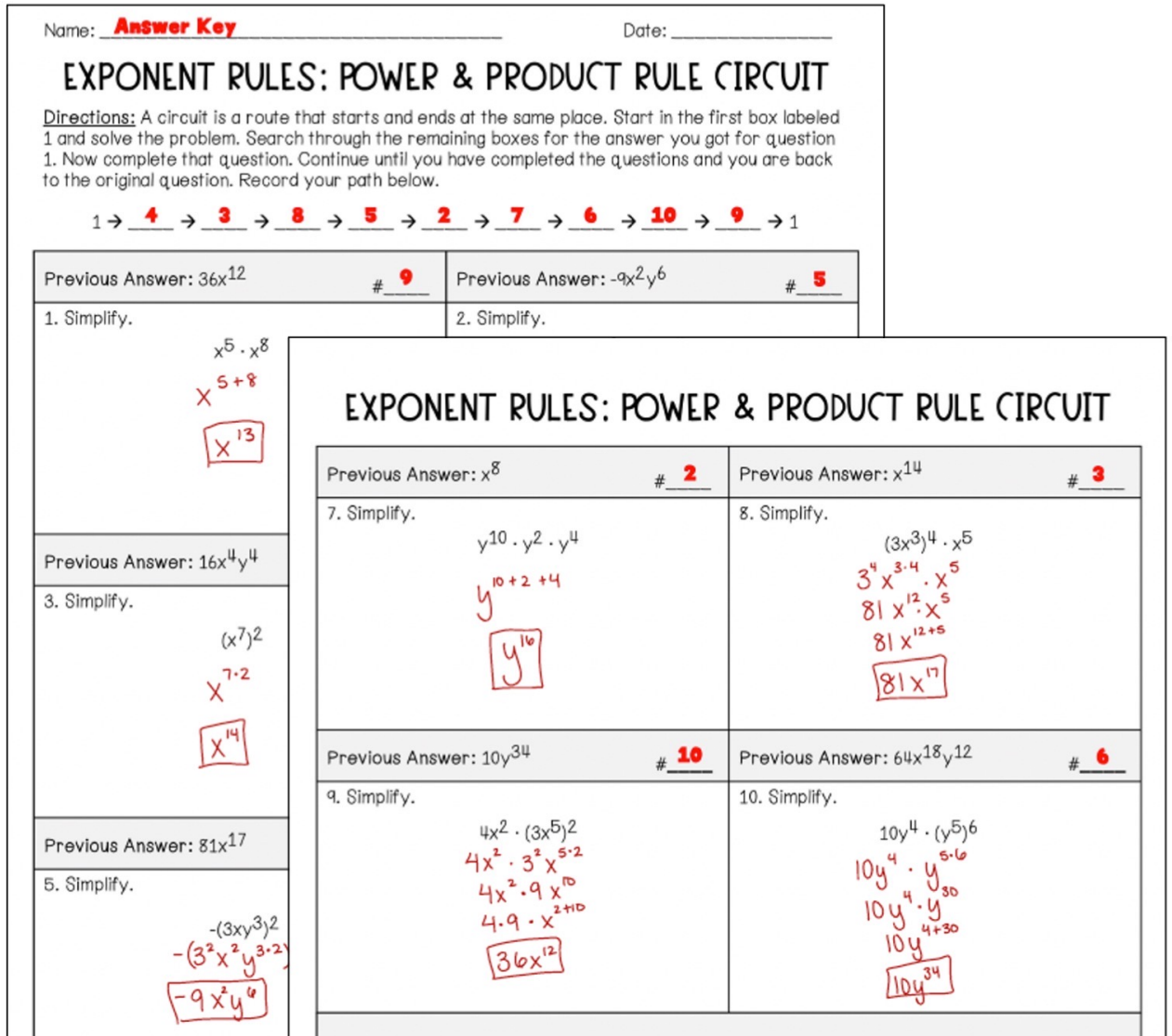
1 → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → ____ → 1

Previous Answer: $36x^{12}$ #____	Previous Answer: $-9x^2y^6$ #____
1. Simplify. $x^5 \cdot x^8$	2. Simplify. $x^3 \cdot x \cdot x^4$
Previous Answer: $16x^4y^4$ #____	Previous Answer: x^{13} #____
3. Simplify. $(x^7)^2$	4. Simplify. $(2xy)^4$

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



Name: Answer Key Date: _____

EXPONENT RULES: POWER & PRODUCT RULE 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 → 3 → 8 → 5 → 2 → 7 → 6 → 10 → 9 → 1

Previous Answer: $36x^{12}$ # 9	Previous Answer: $-9x^2y^6$ # 5
1. Simplify. $x^5 \cdot x^8$ x^{5+8} x^{13}	2. Simplify.
Previous Answer: $16x^4y^4$	
3. Simplify. $(x^7)^2$ $x^{7 \cdot 2}$ x^{14}	
Previous Answer: $81x^{17}$	
5. Simplify. $-(3xy^3)^2$ $-(3^2x^2y^{3 \cdot 2})$ $-9x^2y^6$	

EXPONENT RULES: POWER & PRODUCT RULE CIRCUIT

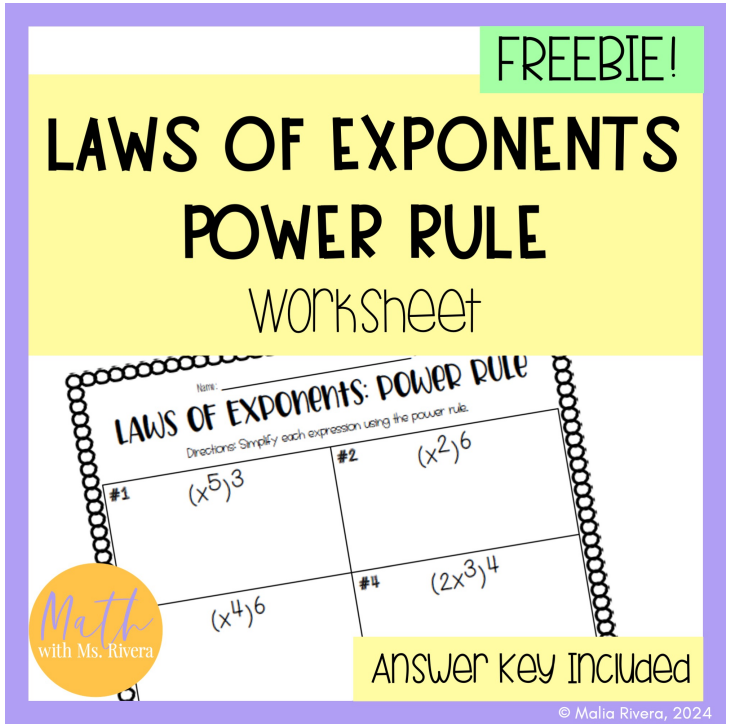
Previous Answer: x^8 # 2	Previous Answer: x^{14} # 3
7. Simplify. $y^{10} \cdot y^2 \cdot y^4$ y^{10+2+4} y^{16}	8. Simplify. $(3x^3)^4 \cdot x^5$ $3^4x^{3 \cdot 4} \cdot x^5$ $81x^{12} \cdot x^5$ $81x^{12+5}$ $81x^{17}$
Previous Answer: $10y^{34}$ # 10	Previous Answer: $64x^{18}y^{12}$ # 6
9. Simplify. $4x^2 \cdot (3x^5)^2$ $4x^2 \cdot 3^2x^{5 \cdot 2}$ $4x^2 \cdot 9x^{10}$ $4 \cdot 9 \cdot x^{2+10}$ $36x^{12}$	10. Simplify. $10y^4 \cdot (y^5)^6$ $10y^4 \cdot y^{5 \cdot 6}$ $10y^4 \cdot y^{30}$ $10y^{4+30}$ $10y^{34}$

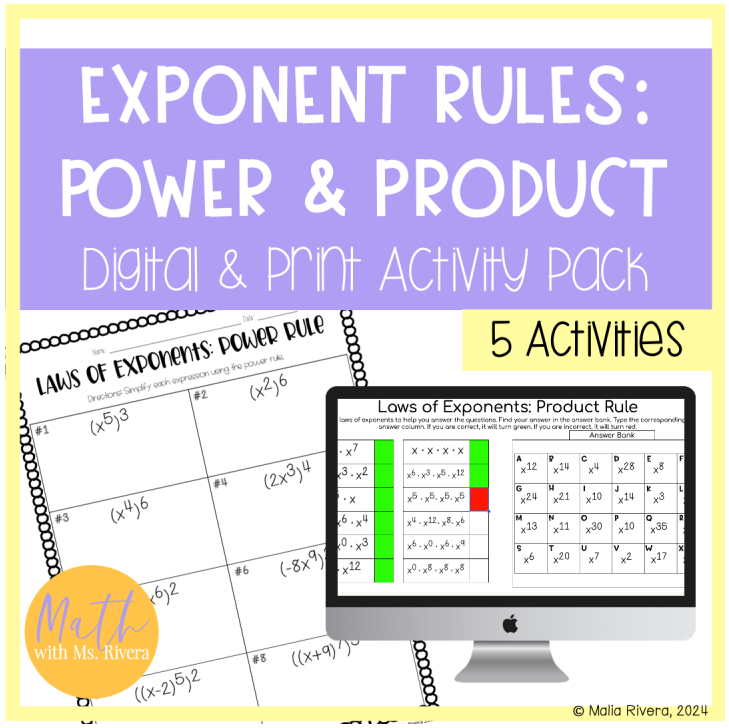
This is a great activity to use when reviewing how simplify exponents with the product & power rules.

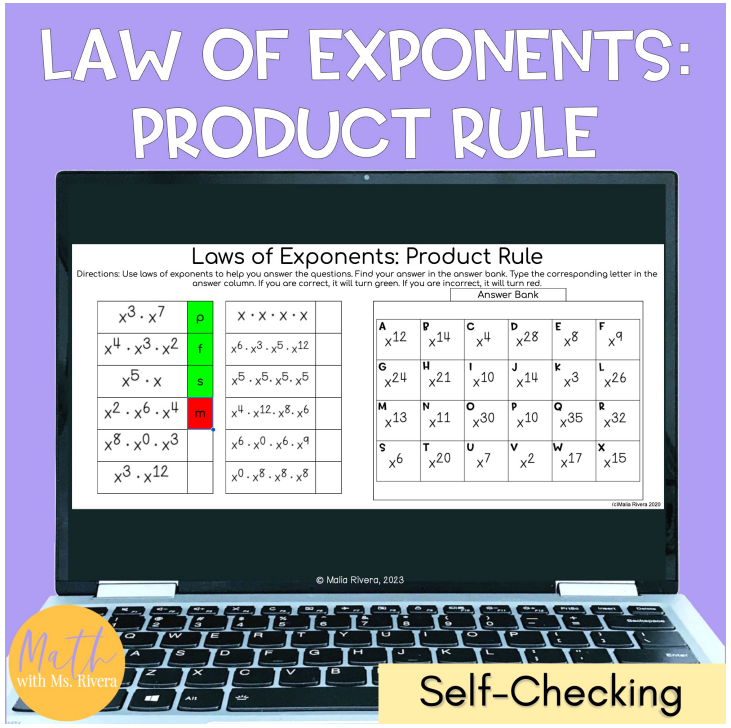
It can be used right after teaching the concept or as homework.

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

You may also *enjoy*...







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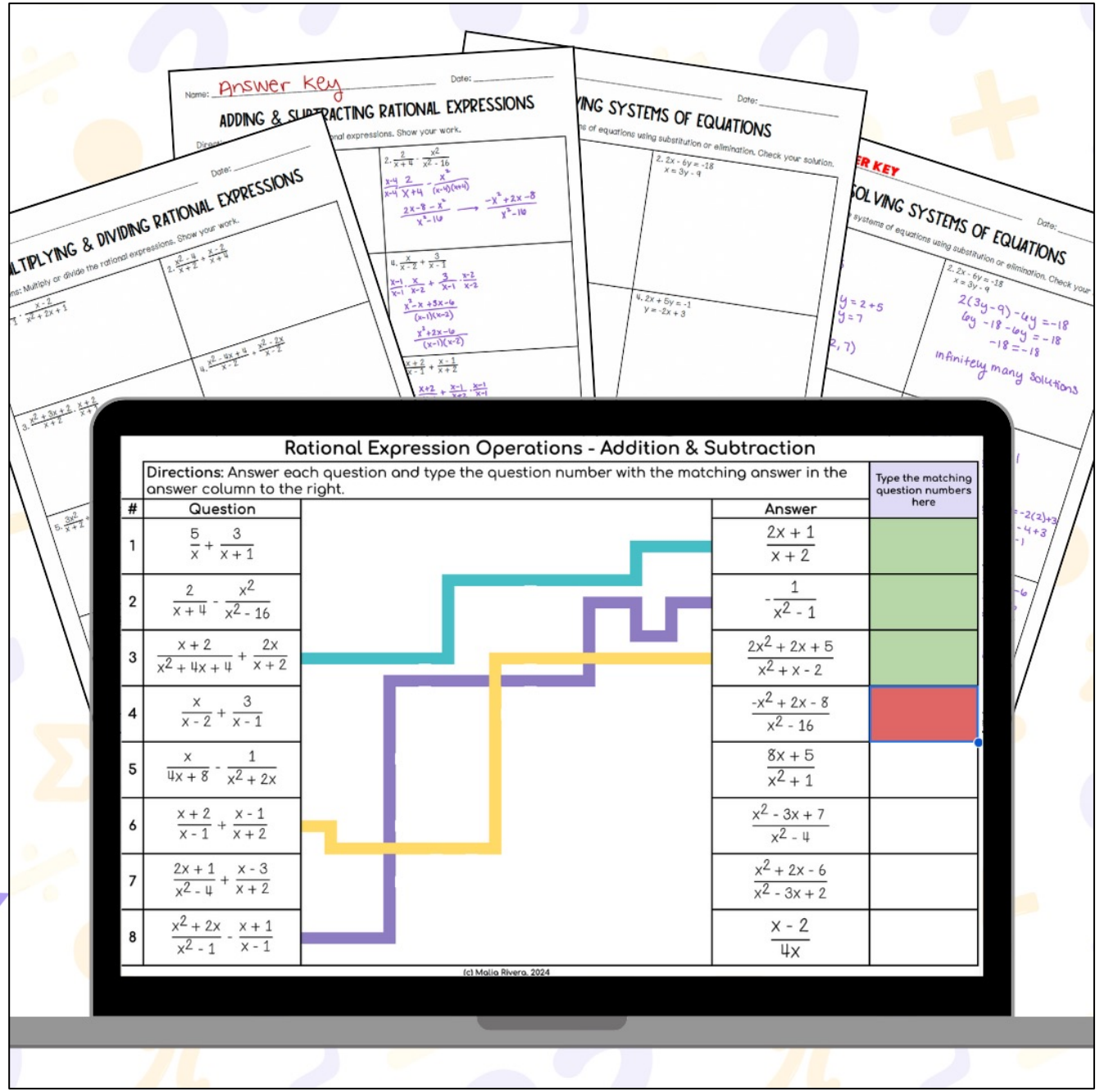
check it out!



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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