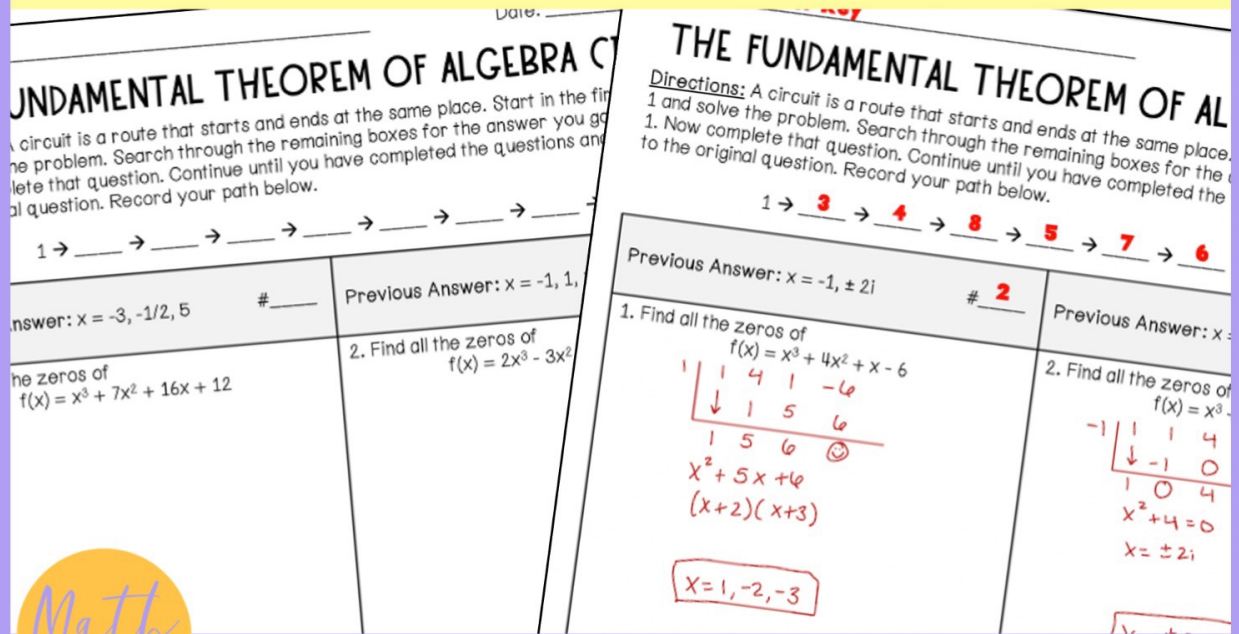
keep scrolling to get a sneak peek!

Help your Algebra students practice **finding roots of polynomials using the Fundamental Theorem of Algebra**. Students will be eager to get the self-checking benefits from this circuit activity!

THE FUNDAMENTAL THEOREM OF ALGEBRA

Differentiated Circuit Worksheet



Math with Ms. Rivera

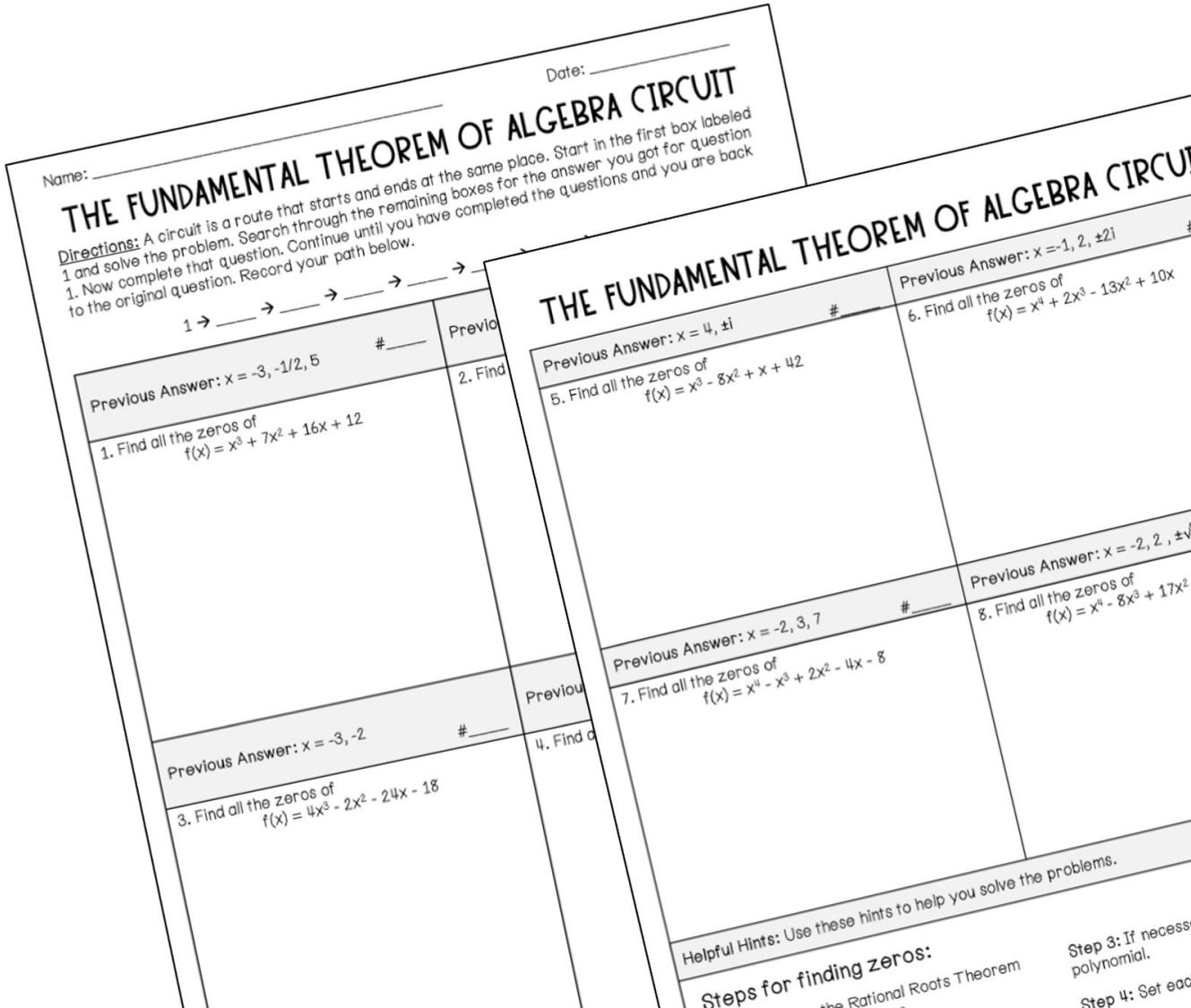
2 versions + answer key included

© Malia Rivera, 2024

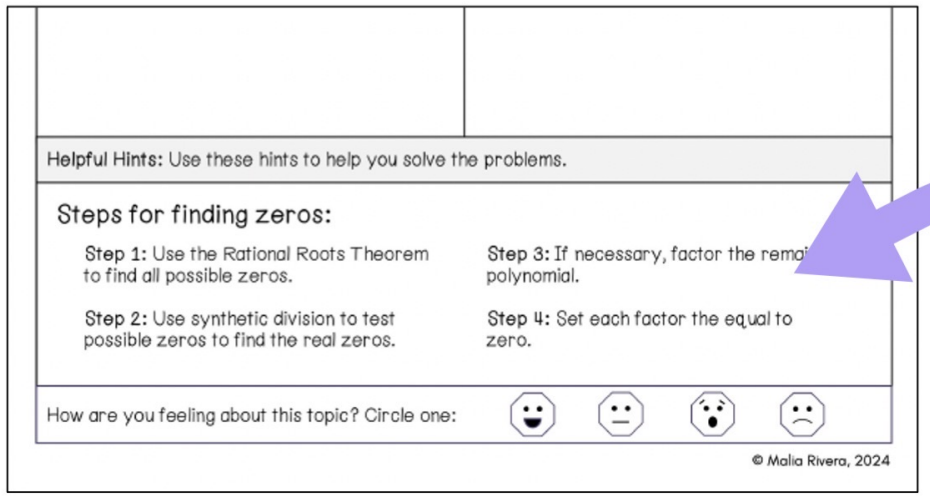
why do you need this?

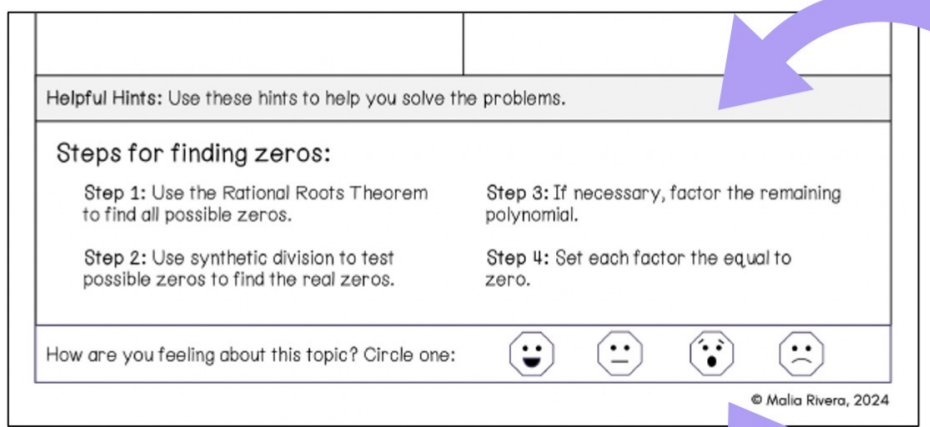
- It's self-checking! Your students will know if they are correct or not.
- 2 differentiated versions for all students practice this essential math skill.

The Fundamental Theorem of Algebra Circuit



The Fundamental Theorem of Algebra Circuit *includes*:





- ✅ 8 self-checking problems
- ✅ a detailed answer key
- ✅ a standard version with an extension question
- ✅ a basic version with helpful hints section
- ✅ student self assessment

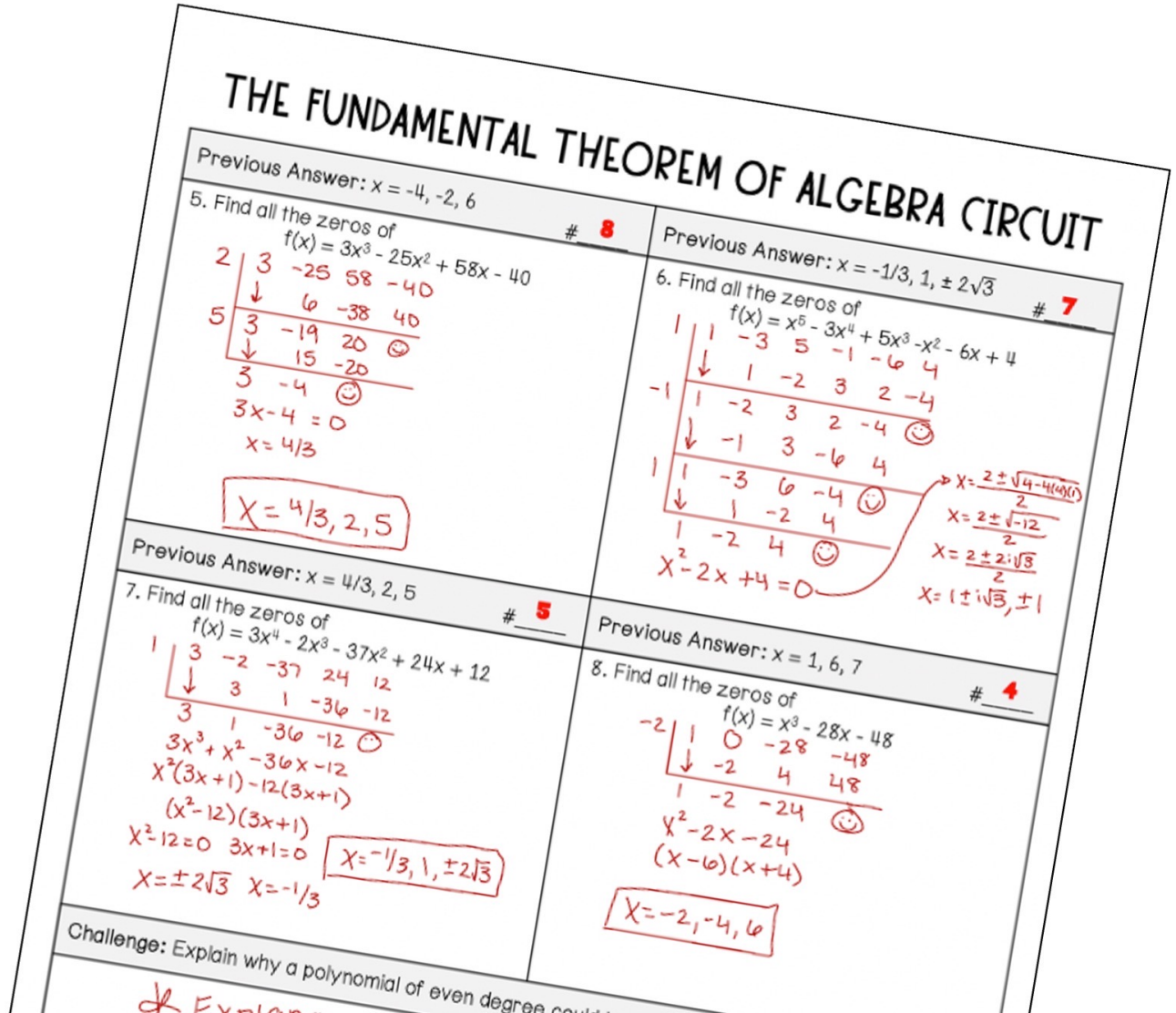
The Fundamental Theorem of Algebra Circuit

standards covered:

CCSS: HSA-APR.B.3

TEKs: A2.7.D, A2.7.E

VA SOLs: EO.All.1.c



how this circuit resource works

Students can track their path at the top.

Students start with the first question.

Name: _____ Date: _____

THE FUNDAMENTAL THEOREM OF ALGEBRA 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.

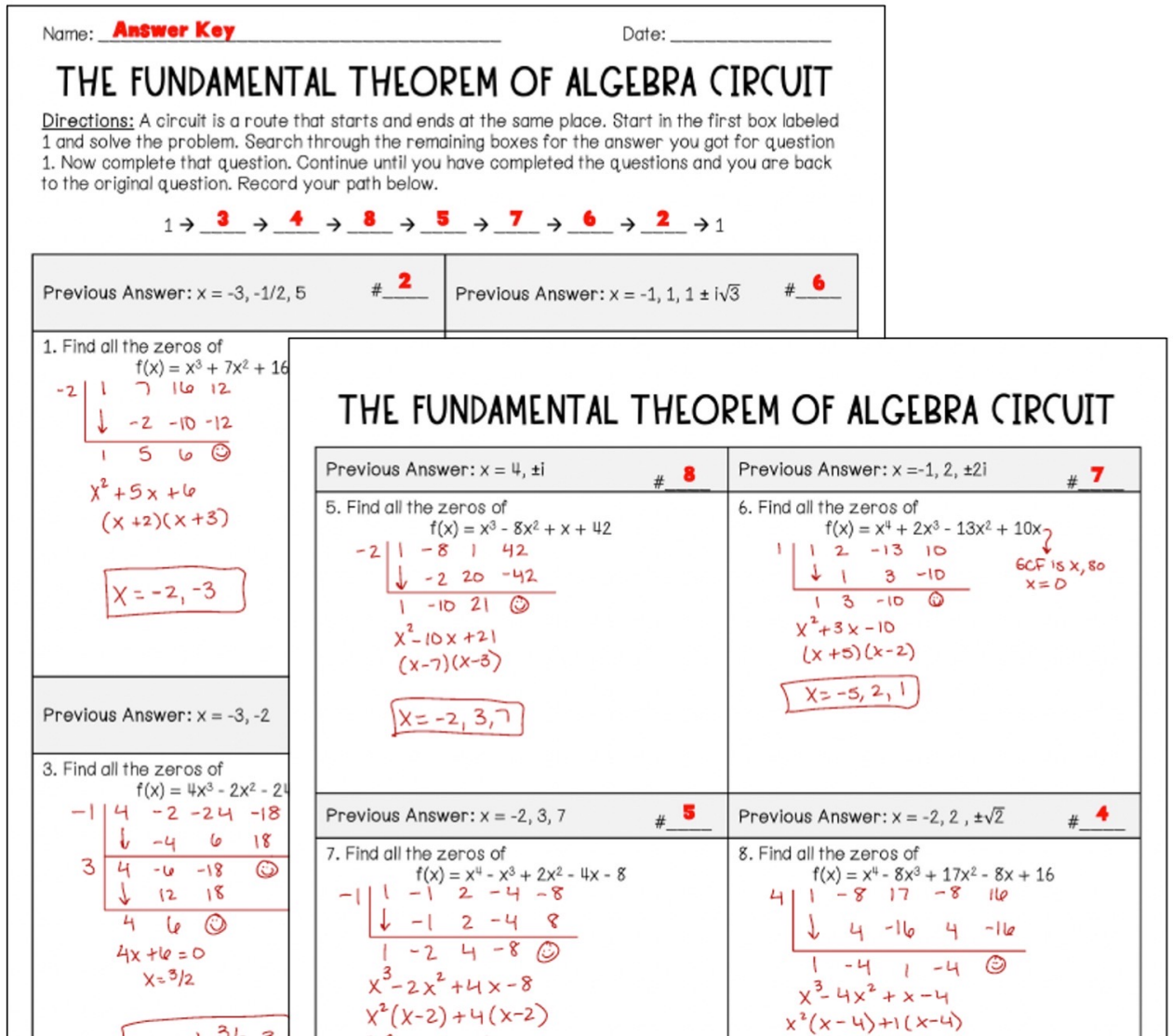
1 → ____ → ____ → ____ → ____ → ____ → ____ → ____ → 1

Previous Answer: $x = -3, -1/2, 5$ #_____	Previous Answer: $x = -1, 1, 1 \pm i\sqrt{3}$ #_____
1. Find all the zeros of $f(x) = x^3 + 7x^2 + 16x + 12$	2. Find all the zeros of $f(x) = 2x^3 - 3x^2 - 32x - 15$
Previous Answer: $x = -3, -2$ #_____	Previous Answer: $x = 3/2, -1, 3$ #_____
3. Find all the zeros of $f(x) = 4x^3 - 2x^2 - 24x - 18$	4. Find all the zeros of $f(x) = x^3 - 14x^2 + 55x - 42$

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:

THE FUNDAMENTAL THEOREM OF ALGEBRA 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 → 3 → 4 → 8 → 5 → 7 → 6 → 2 → 1

Previous Answer: x = -3, -1/2, 5 # 2

Previous Answer: x = -1, 1, 1 ± i√3 # 6

1. Find all the zeros of $f(x) = x^3 + 7x^2 + 16$

-2 | 1 7 16 12
↓ -2 -10 -12
1 5 6 ☺

x^2+5x+6
$(x+2)(x+3)$

X = -2, -3

Previous Answer: x = -3, -2

3. Find all the zeros of $f(x) = 4x^3 - 2x^2 - 24$

-1 | 4 -2 -24 -18
↓ -4 6 18
3 | 4 -6 -18 ☺
↓ 12 18
4 6 ☺

4x + 16 = 0
x = 3/2

THE FUNDAMENTAL THEOREM OF ALGEBRA CIRCUIT

Previous Answer: x = 4, ±i # 8

5. Find all the zeros of $f(x) = x^3 - 8x^2 + x + 42$

-2 | 1 -8 1 42
↓ -2 20 -42
1 -10 21 ☺

$x^2-10x+21$
$(x-7)(x-3)$

X = -2, 3, 7

Previous Answer: x = -2, 3, 7 # 5

7. Find all the zeros of $f(x) = x^4 - x^3 + 2x^2 - 4x - 8$

-1 | 1 -1 2 -4 -8
↓ -1 2 -4 8
1 -2 4 -8 ☺

x^3-2x^2+4x-8
$x^2(x-2)+4(x-2)$

Previous Answer: x = -1, 2, ±2i # 7

6. Find all the zeros of $f(x) = x^4 + 2x^3 - 13x^2 + 10x$

1 | 1 2 -13 10
↓ 1 3 -10
1 3 -10 ☺

GCF is x, so x = 0

$x^2+3x-10$
$(x+5)(x-2)$

X = -5, 2, 1

Previous Answer: x = -2, 2 , ±√2 # 4

8. Find all the zeros of $f(x) = x^4 - 8x^3 + 17x^2 - 8x + 16$

4 | 1 -8 17 -8 16
↓ 4 -16 4 -16
1 -4 1 -4 ☺

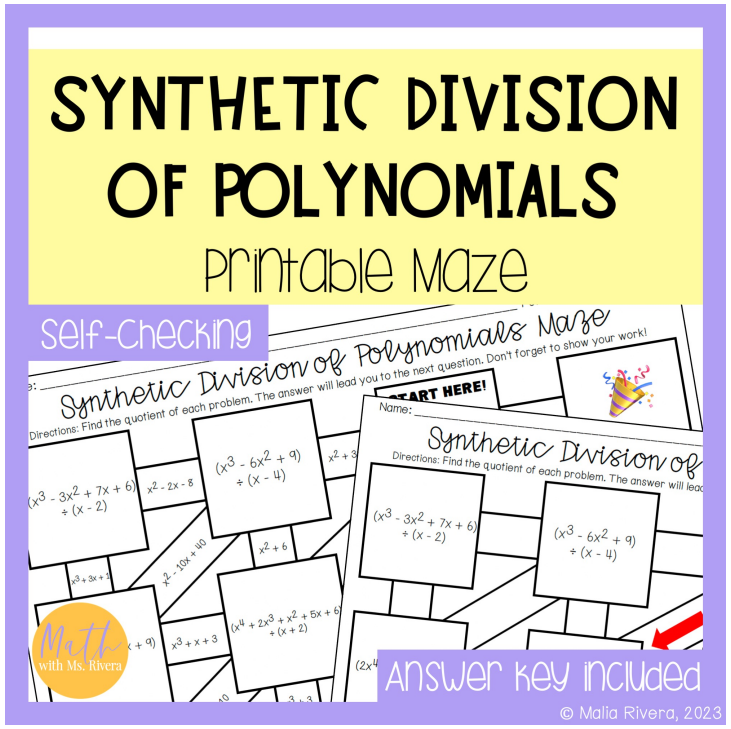
x^3-4x^2+x-4
$x^2(x-4)+1(x-4)$

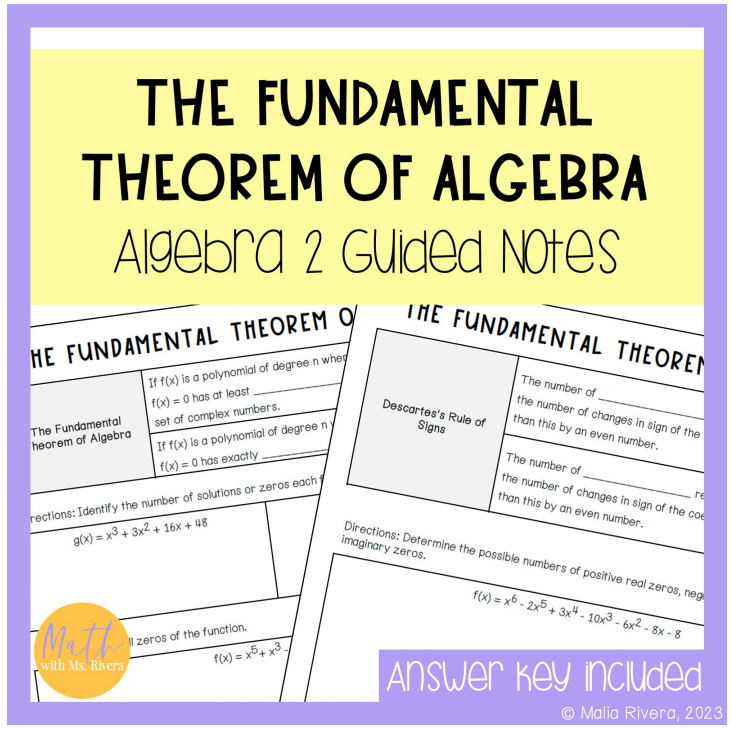
This is a great activity to use when reviewing how to use the fundamental theorem of algebra to find roots of polynomials.

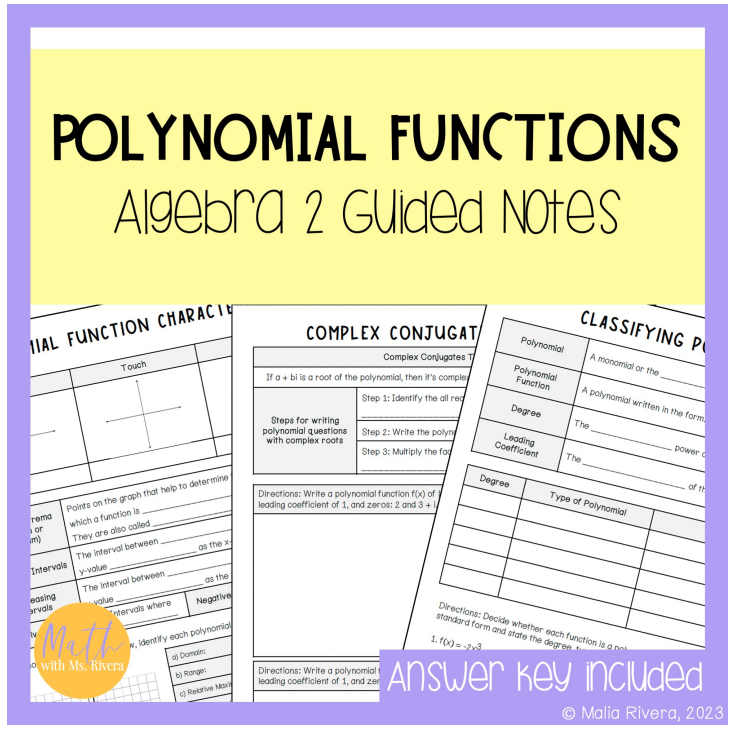
It can be used right after teaching the concept or as homework.

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

You may also *enjoy*...





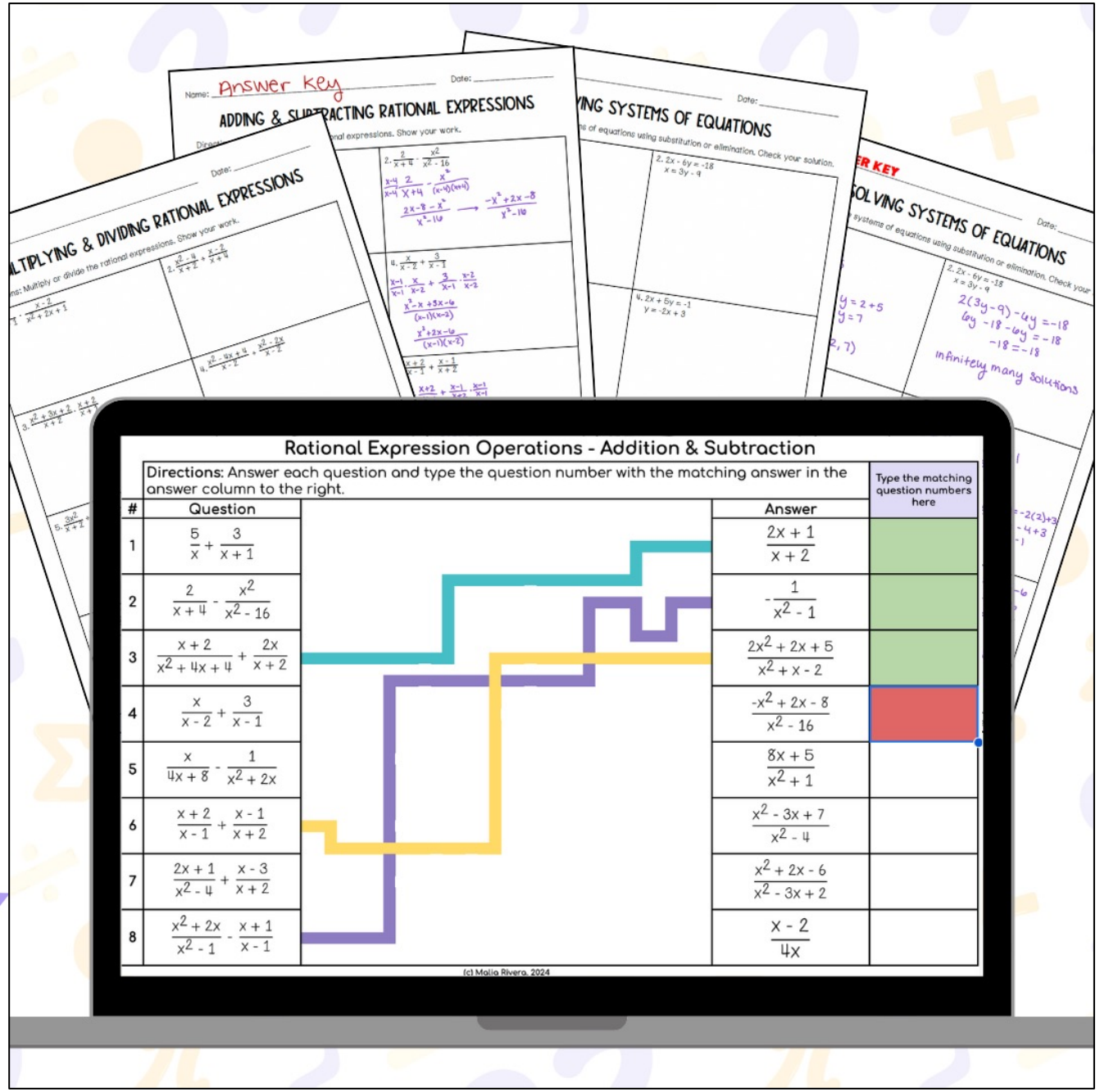


Free Algebra Activities!

When you join my email list, I'll send you a free Algebra print & digital self-checking activities. There is an Algebra 1 and Algebra 2 version!

You'll also be getting exclusive freebies and content to help your Algebra students be successful this school year!

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!

Did you know you could get **FREE** money from TPT??

All you need to do is leave feedback on the product after you purchase. Click here to leave reviews and earn credits towards your next TPT purchase!

let's connect!

Follow my TPT store

Follow my Instagram

Email me