

keep scrolling to get a
sneak peak!

This set of guided
notes will walk Algebra
2 students
through polynomial
function operations.
All you need to do is print
& make copies for your
students!

POLYNOMIAL OPERATIONS

Algebra 2 Guided Notes

ANSWER KEY INCLUDED

why do you need this?



It's simple and done-for-you! Just print and make copies!



Students can work on essential Algebra 2 skills.

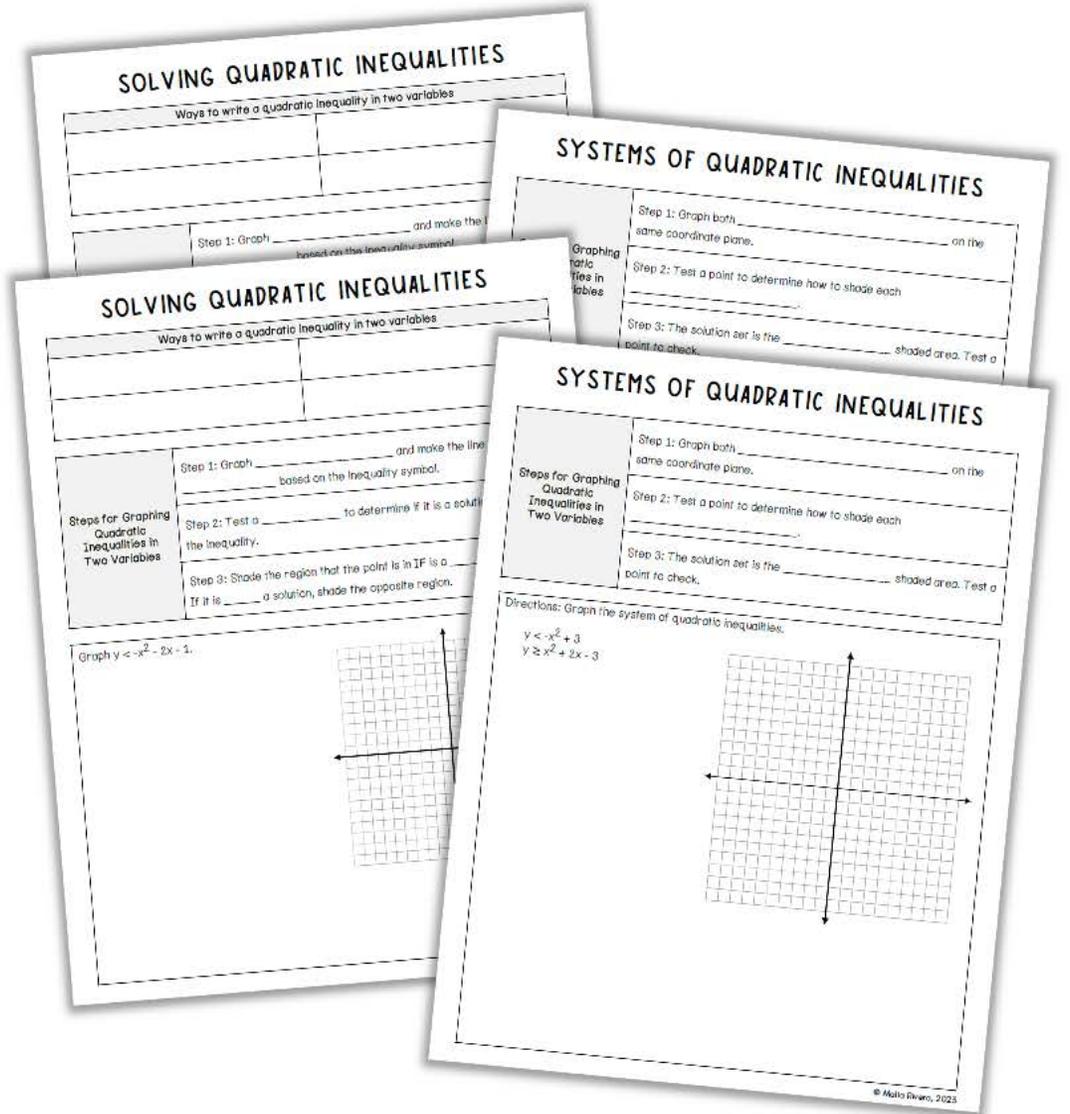


Aligns to CCSS, TEKS, and VA SOLs!

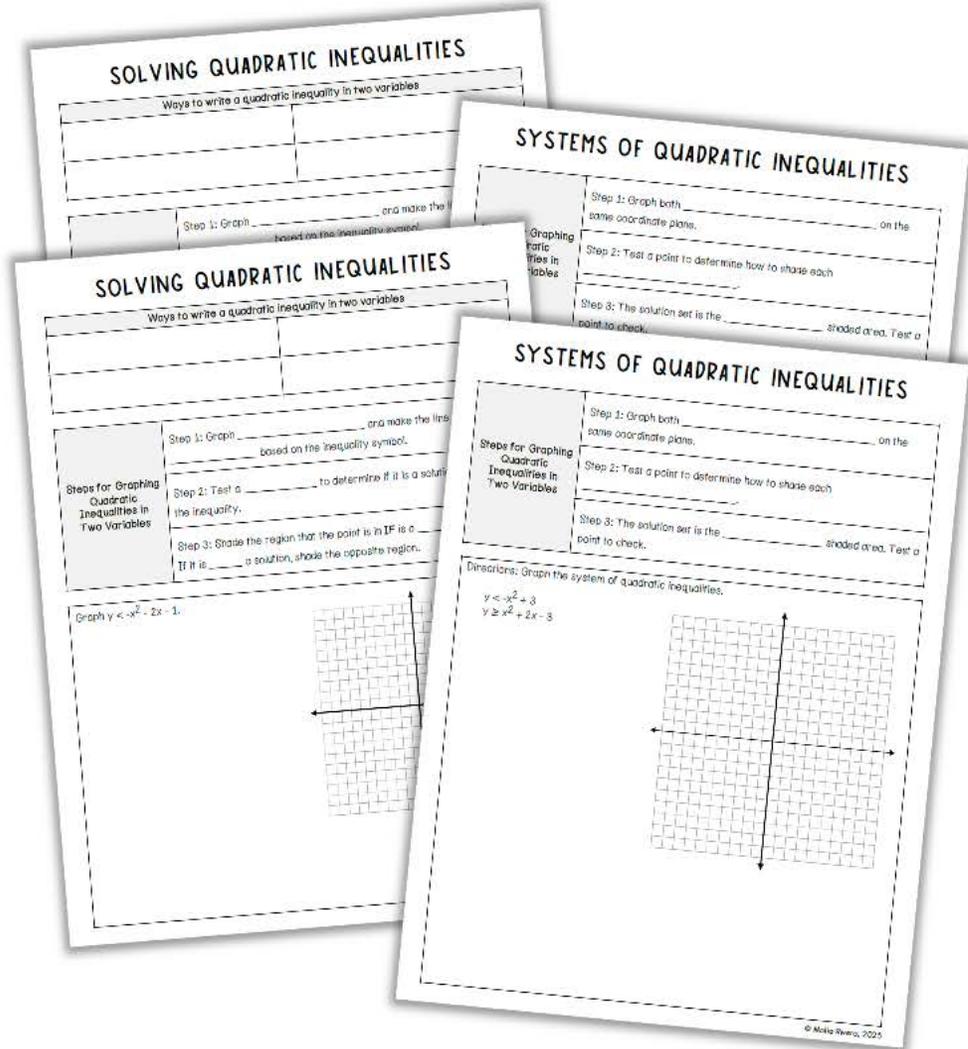


Suggested and detailed answer keys are included for you!

Algebra 2 Guided Notes Polynomial Function Operations



Algebra 2 Guided Notes: Polynomial Function Operations *includes*:



- ✓ 4 pages of guided notes
- ✓ Adding and Subtracting Polynomials
- ✓ Multiplying Polynomials
- ✓ Special Products of Polynomials
- ✓ Polynomial Long Division
- ✓ Polynomial Synthetic Division
- ✓ Remainder Theorem

Algebra 2 Guided Notes: Polynomial Function Operations *includes:*

✓ Detailed answer keys

CCSS: HSA-APR.A.1, HSA-APR.B.2, HSA-APR.D.6

TEKS: A1.10.A, A1.10.B, A1.10.C, A2.7.B

VA SOL: EO.A.2.b

The image shows two overlapping pages of algebra notes. The top page is titled "ADDING & SUBTRACTING POLYNOMIALS" with a handwritten "Answer key" in red. It contains two problems. The first problem asks to horizontally add or subtract $(3x^3 + 2x^2 - x - 7) + (x^3 - 10x^2 + 8)$. The handwritten solution shows the terms aligned and combined to get $4x^3 - 8x^2 - x + 1$. The second problem asks to horizontally subtract $(2x^3 + 6x^2 - x + 1) - (8x^3 - 3x^2 - 2x + 9)$. The handwritten solution shows the terms aligned and combined to get $-6x^3 + 9x^2 + x - 8$. The bottom page is titled "DIVIDING POLYNOMIALS" with a handwritten "Answer key" in red. It contains a section for "Polynomial Long Division" with an example: "Ex: Divide $2x^4 + 3x^3 + 5x - 1$ by $x^2 + 3x + 2$." The handwritten solution shows the long division process, resulting in a quotient of $2x^2 - 3x + 5$ and a remainder of $-4x - 11$. The final answer is written as $2x^2 - 3x + 5 + \frac{-4x - 11}{x^2 + 3x + 2}$. Below this is a section for "Synthetic Division of Polynomials" with an example: "Ex: Divide $-x^3 + 4x^2 + 9$ by $x - 3$."

Check out what *other teachers* are saying:



"This was great practice for my Algebra II students after I presented the lesson. Next Year, I may use them as notes."

- Vonda B.



"Great resource for what we were currently covering in precalc!"

- Megan M.



"I used this in conjunction with another document, but this would have worked fine on its own. The students found it much easier to understand the concept using these guided notes."

- Cheryl W.

You may also enjoy ...

FACTORING POLYNOMIALS

Algebra 2 Guided Notes

FACTORING POLYNOMIALS

$$3x^4 + 9x^3 - 2x^2 - 6x$$

FACTORING POLYNOMIALS

Directions: Factor each polynomial completely by taking out the greatest common factor.

$$3y^5 - 48y^3$$

Special Factoring Patterns

Sum of Two Cubes

$$a^3 + b^3 =$$

Difference of Two Cubes

$$a^3 - b^3 =$$

CRummy CRummy SOPS Method for Sum & Difference

Answer key included

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SOLVING POLYNOMIAL EQUATIONS

Algebra 2 Guided Notes

SOLVING POLYNOMIAL EQUATIONS

Directions: Solve each polynomial equation by factoring.

$$0 = 2x^3 - 12x^2 + 18x$$

$$12n^2 + 48n = -n^3 - 64$$

SOLVING POLYNOMIAL EQUATIONS

The Rational Root Theorem

If a polynomial function has a rational solution of $f(x) = 0$ has the form $\frac{p}{q}$ where p is a factor of the constant term and q is a factor of the leading coefficient.

$$\frac{p}{q} =$$

The rational root theorem helps to find all of the rational solutions, you must check all the values from the list of possible rational roots.

Ex: Find the real solutions of $x^3 - 8x^2 + 11x + 20 = 0$.

Answer key included

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THE FUNDAMENTAL THEOREM OF ALGEBRA

Algebra 2 Guided Notes

THE FUNDAMENTAL THEOREM OF ALGEBRA

The Fundamental Theorem of Algebra

If $f(x)$ is a polynomial of degree n where $n > 0$, then $f(x) = 0$ has at least one complex solution.

If $f(x)$ is a polynomial of degree n where $n > 0$, then $f(x) = 0$ has exactly n complex solutions, counting multiplicity.

Directions: Identify the number of solutions or zeros each polynomial has.

$$g(x) = x^3 + 3x^2 + 16x + 48$$

Number of zeros of the function.

$$f(x) = x^5 + x^3 - 8$$

THE FUNDAMENTAL THEOREM OF ALGEBRA

Descartes's Rule of Signs

The number of positive real zeros of a polynomial function is at most the number of changes in sign of the coefficients of the polynomial. The number of negative real zeros is at most the number of changes in sign of the coefficients of the polynomial when the signs of all the terms are reversed.

Directions: Determine the possible numbers of positive real zeros, negative real zeros, and imaginary zeros.

$$f(x) = x^6 - 2x^5 + 3x^4 - 10x^3 - 6x^2 - 8x - 8$$

Answer key included

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Check out the *year-long bundle!*

ALGEBRA 2 GUIDED NOTES Year-Long Bundle

TRANSFORMATIONS OF FUNCTIONS

Type of Transformation	$f(x)$ Notation
Reflection	$-f(x)$
Vertical Dilation	$af(x)$ $0 < a < 1$ $ a > 1$
Horizontal Dilation	$f(bx)$ $0 < b < 1$ $ b > 1$
Vertical Translation	$f(x) + k$

LINEAR REGRESSION

SCATTER PLOT
Definition: A graph of _____ points that are _____

SCATTER PLOT RELATIONSHIPS

LINE OF BEST FIT
Definition: A line that _____ as close as possible to all _____

LINEAR REGRESSION
Definition: A linear model that is used to _____ between two variables.

LINEAR INTERSECTIONS
Estimating Slope: _____
Slope: _____
Y-intercept: _____

GRAPHING QUADRATIC TRANSFORMS

Reflection over the x-axis: _____

COMPOSITION OF FUNCTIONS

Definition: To make the _____ of another function.

Things to remember:

- Always start with the _____ the function on the _____
- Tag does not always equal _____

$(f \circ g)(x) = \dots$ is also _____

$g(x) = 2x + 3$ and $g(x) = x^2$, find $(f \circ g)(x)$

$g(x) = 2x + 3$ and $g(x) = x^2$, find $(g \circ f)(x)$

COMPOUND INEQUALITIES

Compound inequality has two separate inequalities joined by _____

Graph of a compound inequality with "and" is the _____ of the graphs of the inequalities.

$x > -8$

POLYNOMIAL FUNCTION CHARACTERISTICS

Multiplicities	Touch	Inflection

RELATIVE EXTREMA (Minimum or Maximum)
Points on the graph that help to describe the _____ of a function. They are also called _____ or _____.

INCREASING INTERVALS
The interval between _____ y-values _____ as the x-value _____.

DECREASING INTERVALS
The interval between _____ y-values _____ as the x-value _____.

POSITIVE INTERVALS
Intervals where _____

PROPERTIES OF RATIONAL EXPONENTS & RADICALS

Property	Properties of Rational Exponents
Product of Powers	Definition
Power of a Power	
Power of a Product	
Negative Exponent	
Zero Exponent	
Quotient of Powers	
Power of a Quotient	

Directions: Use the properties of rational exponents to simplify: $1. (y^{1/2} \cdot y^{1/3})^2$

Math with Ms. Rivera

ANSWER KEY INCLUDED



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 these Polynomial Function Operations guided notes for Algebra 2 that can be used all year long!

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