

keep scrolling to get a
sneak peak!

This set of guided
notes will walk Algebra
2 students through solving
quadratic equations with
imaginary solutions.
All you need to do is print
& make copies for your
students!

SOLVING QUADRATIC EQUATIONS WITH IMAGINARY SOLUTIONS

Algebra 2 Guided Notes

The image shows two overlapping pages of guided notes. The top page is titled "SOLVING QUADRATIC EQUATIONS WITH IMAGINARY SOLUTIONS" and includes a section for "Two Imaginary Solutions" with a graph of a parabola that does not intersect the x-axis. The bottom page is also titled "SOLVING QUADRATIC EQUATIONS WITH IMAGINARY SOLUTIONS" and includes a section for "Two Imaginary Solutions" with a graph of a parabola that does not intersect the x-axis. The graph is labeled "Graph of $y = ax^2 + bx + c$ " and has a red arrow pointing upwards from the vertex, indicating it opens upwards. The discriminant value is written as $b^2 - 4ac < 0$ in red. Below the graph, it says "no x-intercepts" in red. The bottom page also includes a table of practice problems with solutions.

Directions: Solve each quadratic equation using the given method.	Directions: Solve each quadratic equation using the given method.	Directions: Solve each quadratic equation using the given method.
Solve $2x^2 - 11 = -47$ using the square roots method.	Solve $3x^2 + 12x + 15 = 0$ by completing the square.	Solve $-x^2 + 4x =$ quadratic
$2x^2 - 11 = -47$		

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 Solving Quadratic Equations with Imaginary Solutions

SOLVING QUADRATIC EQUATIONS WITH IMAGINARY SOLUTIONS

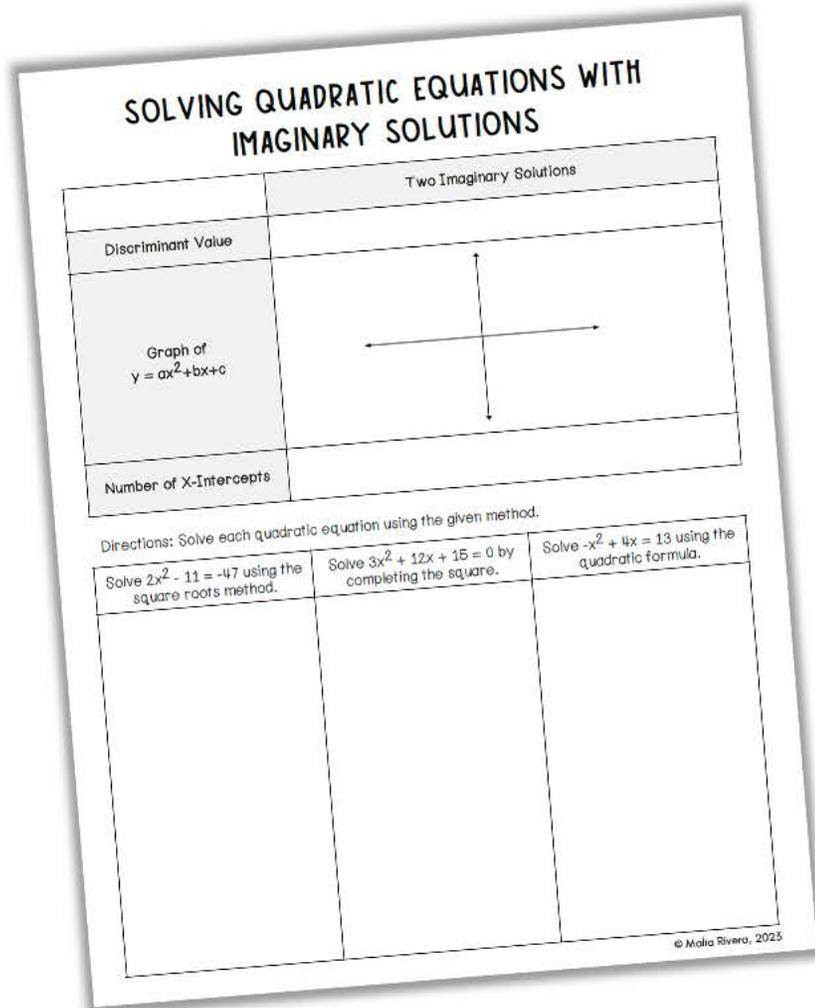
Two Imaginary Solutions	
Discriminant Value	
Graph of $y = ax^2 + bx + c$	
Number of X-Intercepts	

Directions: Solve each quadratic equation using the given method.

Solve $2x^2 - 11 = -47$ using the square roots method.	Solve $3x^2 + 12x + 15 = 0$ by completing the square.	Solve $-x^2 + 4x = 13$ using the quadratic formula.

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Algebra 2 Guided Notes: Solving Quadratic Equations with Imaginary Solutions *includes:*



- ✓ 1 page of guided notes
- ✓ Multiple Representations for Imaginary Solutions
- ✓ Solving Quadratic Equations with Imaginary Solutions
- ✓ Multiple Methods to Solve and Get Imaginary Solutions

Algebra 2 Guided Notes: Solving Quadratic Equations with Imaginary Solutions *includes:*

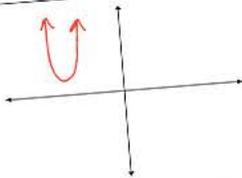
✓ Detailed answer keys

CCSS: HSA-REI.B.4, HSA-REI.B.4.b

TEKs: A2.4.F

VA SOLs: EI.All.3.b

SOLVING QUADRATIC EQUATIONS WITH IMAGINARY SOLUTIONS

	Two Imaginary Solutions
Discriminant Value	$b^2 - 4ac < 0$
Graph of $y = ax^2 + bx + c$	
Number of X-Intercepts	no x-intercepts

Directions: Solve each quadratic equation using the given method.

Solve $2x^2 - 11 = -47$ using the square roots method.	Solve $3x^2 + 12x + 15 = 0$ by completing the square.	Solve $-x^2 + 4x = 13$ using the quadratic formula.
$\begin{aligned} 2x^2 - 11 &= -47 \\ +11 &+11 \\ \hline 2x^2 &= -36 \\ \frac{2x^2}{2} &= \frac{-36}{2} \\ \sqrt{x^2} &= \sqrt{-18} \\ X &= \pm 3i\sqrt{2} \end{aligned}$	$\begin{aligned} 3x^2 + 12x + 15 &= 0 \\ 3(x^2 + 4x + 5) &= 0 \\ \frac{3x^2 + 12x + 15}{3} &= \frac{0}{3} \\ x^2 + 4x + 5 &= 0 \\ x^2 + 4x + \frac{16}{4} &= -5 + \frac{16}{4} \\ x^2 + 4x + 4 &= -5 + 4 \\ \sqrt{(x+2)^2} &= \sqrt{-1} \\ x+2 &= \pm i \\ -2 &-2 \\ \hline X &= -2 \pm i \end{aligned}$	$\begin{aligned} X &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ -x^2 + 4x &= 13 \\ -13 &-13 \\ \hline -x^2 + 4x - 13 &= 0 \\ a &= -1 \quad b = 4 \quad c = -13 \\ X &= \frac{-4 \pm \sqrt{4^2 - 4(-1)(-13)}}{2(-1)} \\ X &= \frac{-4 \pm \sqrt{16 - 52}}{-2} \\ X &= \frac{-4 \pm \sqrt{-36}}{-2} \\ X &= \frac{-4 \pm 6i}{-2} \\ X &= 2 \pm 3i \end{aligned}$

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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 ...

NONLINEAR SYSTEMS OF EQUATIONS

Algebra 2 Guided Notes

AR SYSTEMS OF EQUATIONS
Solutions for Linear-Quadratic Systems of Equations

NONLINEAR SYSTEMS OF EQUATIONS
Types of Solutions for Quadratic-Quadratic Systems

no solution | 1 solution

Directions: Solve the system graphically.
 $x^2 + 5x - 1 = -x^2 + 2x + 1$
EQ1: $x^2 + 5x - 1 = y$ | $1 - 5 - 1$
EQ2: $-x^2 + 2x + 1 = y$ | $1 + 5 - 1$

Solutions: $(-2, -7)$ and $(0.5, 1.75)$

Answer key included

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SOLVING QUADRATIC INEQUALITIES

Algebra 2 Guided Notes

SOLVING QUADRATIC INEQUALITIES
Ways to write a quadratic inequality in one variable

$0 < ax^2 + bx + c$ | $0 > a$
 $0 \leq ax^2 + bx + c$ | $0 \geq a$

Directions: Solve $x^2 - 3x - 4 < 0$.

Algebraically

$ac = -4 \cdot -4 = 16$ | $x^2 - 3x - 4 = 0$
 $b = -3$ | $(x-4)(x+1) = 0$
 $x(x-4) + 1(x-4) = 0$
 $(x+1)(x-4) = 0$
ZPP: $x+1=0$ or $x-4=0$

Answer key included

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QUADRATIC INEQUALITIES: GRAPHING & SYSTEMS

Algebra 2 Guided Notes

SOLVING QUADRATIC INEQUALITIES
Ways to write a quadratic inequality in two variables

$y < ax^2 + bx + c$ | $y > ax^2 + bx + c$
 $y \leq ax^2 + bx + c$ | $y \geq ax^2 + bx + c$

Directions: Graph the system of quadratic inequalities.
 $y < -x^2 + 3$
 $y \geq x^2 + 2x - 3$

Steps for Graphing Quadratic Inequalities in Two Variables

- Graph both on the same coordinate plane.
- Test a point to determine how to shade each inequality.
- The solution set is the region that is shaded by both inequalities.

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 _____ another function.

Things to remember:

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

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

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

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

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.

$x > 3$

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 Solving Quadratic Equations with Imaginary Solutions guided notes for Algebra 2 that can be used all year long!

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