

keep scrolling to get a
sneak peak!

This set of guided notes will
walk Algebra 2 students
through using
the discriminant to identify
types of quadratic solutions.
All you need to do is print &
make copies for your
students!

THE DISCRIMINANT

Algebra 2 Guided Notes

THE DISCRIMINANT

The discriminant is used to determine the number and _____ of solutions of a quadratic equation.

	$b^2 - 4ac > 0$	$b^2 - 4a = 0$	$b^2 - 4ac < 0$
Number of Solutions			
Graph of $y = ax^2 + bx + c$			
Number of x-intercepts			

THE DISCRIMINANT

The discriminant is used to determine the _____ of solutions of a quadratic equation.

The Discriminant	$b^2 - 4ac$	The discriminant is used to determine the _____ of solutions of a quadratic equation.	
		_____ <i>types</i> _____	
Number of Solutions	$b^2 - 4ac > 0$	$b^2 - 4a = 0$	$b^2 - 4ac < 0$
	2 real solutions	1 real solution	no real solutions
Graph of $y = ax^2 + bx + c$			
Number of x-intercepts	2 x-intercepts	1 x-intercept	no x-intercepts

Math with Ms. Rivera

Directly simplified

Answer key included

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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 Using the Discriminant

THE DISCRIMINANT

The Discriminant The discriminant is used to determine the number and _____ of solutions of a quadratic equation.

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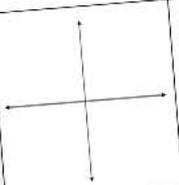
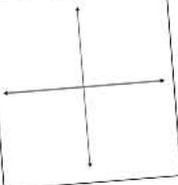
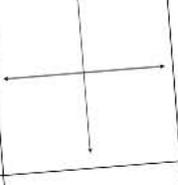
Directions: Solve each quadratic equation using the quadratic formula. Leave your answer in simplest radical or fraction form.

Equations	Discriminant	Solution(s)
$x^2 - 6x + 10 = 0$		
$x^2 - 12x + 36 = 0$		
$5x^2 - 18x + 9 = 0$		

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Algebra 2 Guided Notes: Using the Discriminant *includes:*

THE DISCRIMINANT

The Discriminant	The discriminant is used to determine the number and _____ of solutions of a quadratic equation.		
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- ✓ 1 page of guided notes
- ✓ Multiple Representations for the Discriminant
- ✓ Applying the Discriminant

Algebra 2 Guided Notes: Using the Discriminant *includes:*

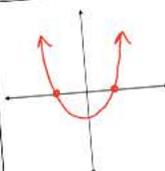
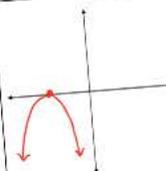
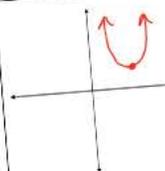
✓ Detailed answer keys

CCSS: HSA-REI.B.4

TEKS: A2.4.F

VA SOLs: EI.All.3.b

THE DISCRIMINANT

The Discriminant	$b^2 - 4ac$	The discriminant is used to determine the number and <u>types</u> of solutions of a quadratic equation.	
	$b^2 - 4ac > 0$	$b^2 - 4ac = 0$	$b^2 - 4ac < 0$
Number of Solutions	2 real solutions	1 real solution	no real solutions
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Number of x-intercepts	2 x-intercepts	1 x-intercept	no x-intercepts

Directions: Solve each quadratic equation using the quadratic formula. Leave your answer in simplest radical or fraction form.

Equations	Discriminant	Solution(s)
$x^2 - 6x + 10 = 0$ a b c	$(-b)^2 - 4(a)(c) = -4$	no real solutions
$x^2 - 12x + 36 = 0$ a b c	$(-12)^2 - 4(1)(36) = 0$	1 real solution
$5x^2 - 18x + 9 = 0$ a b c	$(-18)^2 - 4(5)(9) = 144$	2 real solutions

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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 ...

PROJECTILE MOTION

Algebra 2 Guided Notes

APPLICATION: PROJECTILE MOTION

Dropped Object	Launched Object
<p>vertex: Where the object is launched from</p> <p>intercept: where the object hits the ground</p>	<p>vertex: the maximum height of the object</p> <p>intercept: Where the object is launched from</p> <p>intercept: where the object hits the ground</p>

$h = -16t^2 + h_0$ $h = -16t^2 + v_0t + h_0$
 $h = \text{height}$ $v_0 = \text{velocity}$ $h_0 = \text{initial height}$ $t = \text{time}$

1. An egg is dropped from the top of a building at a height of 50 feet. How long will it take for the ball to hit the ground?

2. The height of a baseball can be modeled by the function $h = -16t^2 + 48t + 3$. How long does the baseball go?

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Answer key included

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IMAGINARY NUMBERS

Algebra 2 Guided Notes

IMAGINARY NUMBERS

Imaginary Numbers	Numbers in the form of $a + bi$ where a and b are real numbers and i is imaginary.
Complex Numbers	Numbers that have no real part
Pure Imaginary Numbers	Numbers that have no real part

$i = \sqrt{-1}$

Patterns of i

$i^1 = \sqrt{-1} = i$
$i^2 = \sqrt{-1} \cdot \sqrt{-1} = -1$
$i^3 = i^2 \cdot i = -1 \cdot i = -i$
$i^4 = i^2 \cdot i^2 = -1 \cdot -1 = 1$
$i^5 = i^4 \cdot i = 1 \cdot i = i$

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Answer key included

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COMPLEX NUMBERS

Algebra 2 Guided Notes

COMPLEX CONJUGATION

Complex Conjugate Pairs

Complex numbers that have the same real parts (a) and opposite imaginary parts (b). Conjugates always come in pairs.

Write the conjugate of each complex number:

$5i + 7$	$-2 + i$
----------	----------

Determine the conjugate of the complex number and simplify.

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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: _____
Reflection over the y-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 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

A compound inequality has two separate inequalities joined by _____

The graph of the _____ is the _____

$x > 3$

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: $1. (y^{1/2} \cdot y^{1/3})^2$

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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 Using the Discriminant guided notes for Algebra 2 that can be used all year long!

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