

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 Projectile Motion

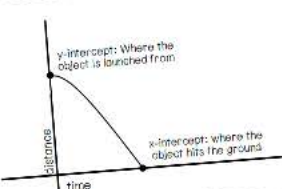
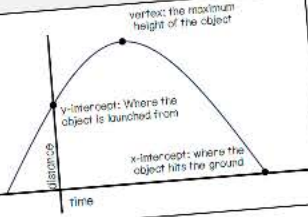
APPLICATION: PROJECTILE MOTION

Dropped Object	Launched Object
$h = \underline{\hspace{2cm}}$	$h = \underline{\hspace{2cm}}$
$h = \underline{\hspace{2cm}} \quad v_0 = \underline{\hspace{2cm}}$	$h_0 = \underline{\hspace{2cm}} \quad t = \underline{\hspace{2cm}}$
1. An egg is dropped from the top of a building at a height of 50ft. How long will it take for the ball to hit the ground?	2. The height of a baseball can be modeled by the function $h = -16t^2 + 96t + 3$. How high does the baseball go?
3. A pumpkin is launched directly upward from the top of a ladder that is 6ft tall at a rate of 32ft per second. How long does it take for the pumpkin to reach it's maximum height?	4. What is the approximate height of a log that is dropped from the top of a 188ft cliff after 2.6 seconds?

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Algebra 2 Guided Notes: Projectile Motion *includes:*

APPLICATION: PROJECTILE MOTION

Dropped Object	Launched Object
	
$h = \underline{\hspace{2cm}}$	$h = \underline{\hspace{2cm}}$
$h = \underline{\hspace{2cm}}$ $v_c = \underline{\hspace{2cm}}$	$h_0 = \underline{\hspace{2cm}}$ $t = \underline{\hspace{2cm}}$

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- ✓ 1 page of guided notes
- ✓ Modeling Projectile Motion
- ✓ Calculating Various Pieces of Information of the Projectile Motion Equations
- ✓ Writing Projectile Motion Equations and Solving

Algebra 2 Guided Notes: Projectile Motion *includes:*

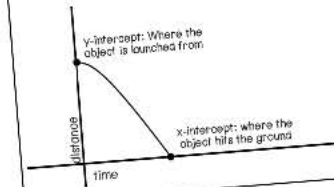
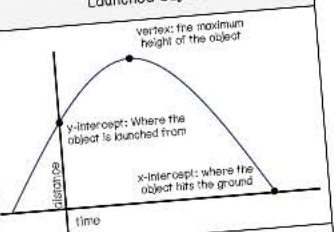
 Detailed answer keys

CCSS: HSA-REI.B.4

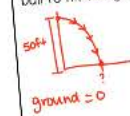
TEKS: A2.4.F

VA SOLs: EI.A11.3.b

APPLICATION: PROJECTILE MOTION

Dropped Object	Launched Object
 <p>y-intercept: Where the object is launched from x-intercept: where the object hits the ground</p>	 <p>vertex: the maximum height of the object y-intercept: Where the object is launched from x-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 50ft. How long will it take for the ball to hit the ground?



$$0 = -16t^2 + 50$$

$$-50 = -16t^2$$

$$\frac{-50}{-16} = \frac{-16t^2}{-16}$$

$$\frac{25}{8} = t^2$$

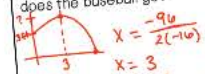
$$\sqrt{\frac{25}{8}} = \sqrt{t^2}$$

$$\frac{5}{2\sqrt{2}} = t$$

$t \approx 3.54 \text{ seconds}$

2. The height of a baseball can be modeled by the function $h = -16t^2 + 96t + 3$. How high does the baseball go?

maximum



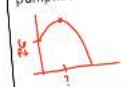
$$x = \frac{-96}{2(-16)}$$

$$x = 3$$

$$h = -16(3)^2 + 96(3) + 3$$

$h = 147 \text{ ft}$

3. A pumpkin is launched directly upward from the top of a ladder that is 6ft tall at a rate of 32ft per second. How long does it take for the pumpkin to reach its maximum height?

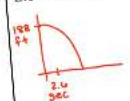


$$h = -16t^2 + 32t + 6$$

$$x = \frac{-32}{2(-16)} = 1$$

$t = 1 \text{ second}$

4. What is the approximate height of a log that is dropped from the top of a 188ft cliff after 2.6 seconds?



$$h = -16t^2 + 188$$

$$h = -16(2.6)^2 + 188$$

$h = 79.84 \text{ ft}$

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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 ...

IMAGINARY NUMBERS

Algebra 2 Guided Notes

IMAGINARY NUMBERS

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

Pattern 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	$= i^3 \cdot i = -i \cdot i = -i^2 = -(-1) = 1$
i^5	$= i^4 \cdot i = 1 \cdot i = i$
i^6	$= i^5 \cdot i = i \cdot i = i^2 = -1$
i^7	$= i^6 \cdot i = -1 \cdot i = -i$
i^8	$= i^7 \cdot i = -i \cdot i = -i^2 = 1$

The pattern of i is: $i, -1, -i, 1$

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 write it.

OPERATIONS OF COMPLEX NUMBERS

Sum & Difference of Complex Numbers

Add or subtract the **real** parts and their **imaginary** parts.

Sum of Complex Numbers: $(a+bi) + (c+di) = (a+c) + (b+d)i$

Difference of Complex Numbers: $(a+bi) - (c+di) = (a-c) + (b-d)i$

Directions: Add or subtract each expression. Write your answer in standard form.

$(8-i) + (5+4i)$ $(8+5) + (-1+4)i$ $13+3i$	$(7-6i) - (3-6i)$ $(7-3) + (-6+6)i$ 4	$(-2+3i) - (4-5i)$ $(-2-4) + (3+5)i$ $-6+8i$
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Answer key included

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SOLVING QUADRATICS WITH IMAGINARY SOLUTIONS

Algebra 2 Guided Notes

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 $2x^2 - 11x + 47 = 0$ by completing the square.	Solve $3x^2 + 12x + 15 = 0$ by completing the square.	Solve $x^2 + 4x + 4 = 0$ by factoring.
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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: _____
Clear: _____
Slope: _____

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 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" 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 _____ x -values _____ as the x -value _____.

DECREASING INTERVALS
The interval between _____ x -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 Projectile Motion guided notes for Algebra 2 that can be used all year long!

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