

MATH CCSS TEST REVIEW

ALG
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an 11+ day common core aligned test prep
this resource is 100% aligned to CCSS

comprehensive, ready-to-go test review unit






MATH END-OF-THE-YEAR REVIEW INSTRUCTIONS AND IMPLEMENTATION

TABLE OF CONTENTS

The following items have been included in the Math End-of-the-Year Review pack.

TOPIC	STANDARDS	ACTIVITY
Equations and Inequalities	N.Q.1, A.SSE.1a, A.REI.1, A.REI.3, A.CED.1, A.CED.4	He Said, She Said
Properties of Functions	N.Q.1, F.IF.1, F.IF.2, F.IF.5, F.IF.7b, F.BF.4, F.LE.5	Task Cards
Linear Functions	N.Q.1, A.CED.2, A.REI.10, A.REI.12, F.BF.1a, F.IF.4, F.IF.6, F.IF.7a, F.LE.2	Scavenger Hunt
Applying Linear Functions	G.GPE.5, F.BF.3, F.IF.7b, S.ID.6, S.ID.7, S.ID.8, S.ID.9, N.Q.3	Stations
Systems	A.REI.5, A.REI.6, A.REI.11, A.REI.12, A.CED.3	Matching Activity
Exponents and Polynomials	A.APR.1, A.SSE.1a, A.SSE.2, N.RN.1, N.RN.2	Scavenger Hunt
Factoring Polynomials	A.APR.1 & A.SSE.2	Cut and Paste
Quadratic Functions	F.IF.4, F.IF.5, F.IF.7a, F.IF.9, F.BF.3, S.ID.6a	Find It, Fix It
Solving Quadratic Equations	A.SSE.3, A.CED.1, A.REI.4, A.REI.7, F.IF.8a	Puzzle Train
Exponential Functions	A.SSE.1a, A.SSE.3c, A.CED.1, F.IF.4, F.IF.5, F.IF.6, F.IF.8b, F.BF.1a, F.LE.1a, F.LE.2, F.LE.3, F.LE.5	Stations
Data and Statistics	S.ID.1, S.ID.2, S.ID.3, S.ID.5	Find It, Fix It

Additionally, the same content has been formatted for easier printing by placing all of the materials in one file. For example, all of the quizzes together, all of the activities together, all of the warm-ups together, etc.

 Activities Only.pdf	<input checked="" type="checkbox"/>	Ye
 Cheat Sheets Only.pdf	<input checked="" type="checkbox"/>	Ye
 Quick Checks Only.pdf	<input checked="" type="checkbox"/>	Ye
 Teacher Guides Only.pdf	<input checked="" type="checkbox"/>	Ye
 Warm-Ups Only.pdf	<input checked="" type="checkbox"/>	Ye

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SOLVING QUADRATIC EQUATIONS TEACHER GUIDE

STANDARDS

A.SSE.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

- Factor a quadratic expression to reveal the zeros of the function it defines.
- Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

A.REI.4 Solve quadratic equations in one variable.

- Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.
- Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.

A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.

F.JF.8a Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

VOCABULARY & KEYWORDS

radical expression: an expression with a radical sign, such as a square root

COMMON MISTAKES AND MISCONCEPTIONS

- Students may have a hard time distinguishing which method to use and when. Students may confuse when a quadratic equation needs to be rewritten in standard form first depending on method used.
- Students may forget that taking the square root results in two solutions, positive and negative.
- Students may make errors involving integer signs and order of operations when applying the quadratic formula.

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teacher guides
includes:



standards



vocabulary



misconceptions

SOLVING QUADRATIC EQUATIONS

Name _____

WARM-UP

Date _____ Pd _____

1. Solemn writes the quadratic function shown below.

$$g(x) = x^2 + 10x + 16$$

a. Find the zero(s) of $g(x)$. Factor the expression to justify your answer.

b. Solemn claims that $g(x)$ has a vertex at $(5, -9)$. Do you agree or disagree? Convert the function to vertex form to justify your reasoning.

2. Tory tossed a coin into a fountain at the mall. The height of the coin in feet, $h(t)$, can be represented using

$$h(t) = -16t^2 + 7t + 4$$

where t is the time in seconds.

a. Write an equation that could be used to determine the number of seconds it takes for the coin to land on the bottom of the fountain.

b. Use the discriminant to determine the number of solutions to the equation in part a.

c. How many seconds did it take for the coin to land at the bottom of the fountain? Round to the nearest hundredth.



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2 warm-up
questions
per topic



SOLVING QUADRATIC EQUATIONS

Name _____

WARM-UP

Date _____ Pd _____

1. Solemn writes the quadratic function shown below.

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cheat sheets cover
key concepts

SOLVING QUADRATIC EQUATIONS Name _____ Pd _____
CHEAT SHEET - A Date _____

SOLVE BY factoring

STEP	EXAMPLE
1. Equation must be in form of $ax^2 + bx + c = 0$	$x^2 + 3x - 10 = 0$
2. FACTOR the polynomial	$(x + 5)(x - 2)$
3. Set each factor = 0	$x + 5 = 0$ $x - 2 = 0$
4. Solve each equation for x	$x = -5$ $x = 2$

1. Find the largest **PERFECT SQUARE** factor of the radicand
EX: Simplify $\sqrt{24}$
 $\sqrt{4 \cdot 6}$

2. Rewrite the **RADICAND** using the perfect square factor
 $\sqrt{4} \cdot \sqrt{6}$
 $2\sqrt{6}$

3. Take the square root of any **PERFECT SQUARE**

Simplifying Radicals

• Take the square root of **BOTH** sides of the equation to **ISOLATE** the variable

Square Root Method

EX:
 $(x + 5)^2 = 144$
 $x + 5 = \pm \sqrt{144}$
 $x = -17$ and 7

Quadratic Formula

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

• Equation must be in **STANDARD** form

• Identify a, b and c and **SUBSTITUTE** the values into the formula

• Simplify the expression

• Split the expression into **TWO** equations (\pm) and **SOLVE** for x

SOLVING QUADRATIC EQUATIONS Name _____ Pd _____
CHEAT SHEET - B Date _____

SOLVE BY factoring

STEP	EXAMPLE
1. Equation must be in form of _____	$x^2 + 3x - 10 = 0$
2. _____ the polynomial	
3. Set each factor = _____	
4. Solve each equation for _____	

1. Find the largest _____ factor of the radicand
EX: Simplify $\sqrt{24}$

2. Rewrite the _____ using the perfect square factor

2. Take the square root of any _____

Square Root Method

• Take the square root of _____ sides of the equation to _____ the variable

EX:
 $(x + 5)^2 = 144$

Quadratic Formula

$x =$ _____

• Equation must be in _____ form

• Identify a, b and c and _____ the values into the formula

• Simplify the expression

• Split the expression into _____ equations (\pm) and _____ for x

SOLVING QUADRATIC EQUATIONS Name _____ Pd _____
CHEAT SHEET - C Date _____

SOLVE BY factoring

Simplifying Radicals

Completing the Square

Using the Discriminant

Quadratic Formula

3 scaffolded versions



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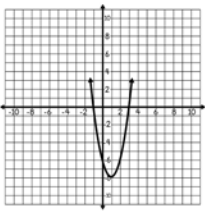
assessments with 8-10 questions

SOLVING QUADRATIC EQUATIONS Name _____
QUICK CHECK Date _____ Pd _____

1. Charlie is solving $3x^2 + 5x = 12$ by factoring. Which of the following describes what his first step should be?

A. Divide both sides of the equation by 3.
B. Take the square root of both sides of the equation.
C. Subtract 12 from both sides of the equation.
D. Find two values with a sum of 5 and a product of 12.

2. The graph of the quadratic function f is shown on the grid. Which of the following best represents the function?

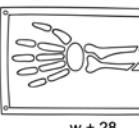


F. $f(x) = x^2 - 2x - 3$
G. $f(x) = 2x^2 - 4x - 6$
H. $f(x) = -2x^2 + 4x - 6$
J. $f(x) = 2x^2 + 4x - 6$

3. What are the solutions to $(x - 6)^2 = 225$?

A. $x = 21$ and $x = -9$
B. $x = 21$ and $x = 9$
C. $x = 118.5$ and $x = 106.5$
D. $x = 231$ and $x = 216$

4. A doctor views a rectangular x-ray image with an area of 128 square centimeters. The length of the image is 28 centimeters greater than the width of the image. The situation can be represented by $w^2 + 28w - 128 = 0$. What is the width of the x-ray image?



F. 32 centimeters
G. 4 centimeters
H. 16 centimeters
J. 8 centimeters

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- ✓ multiple choice
- ✓ griddable
- ✓ Google Forms™ version included

SOLVING QUADRATIC EQUATIONS
ANSWER KEYS

answer keys
included

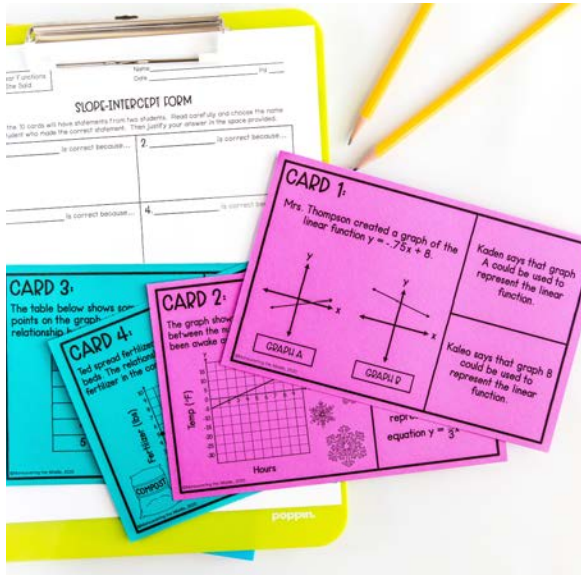


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11 easy-to-prep activities



he said, she said
error analysis activity



scavenger hunt
great for partner work



task cards
variety of uses



puzzle train
make math hands on

he said, she said – task cards – scavenger hunt – stations
matching activity – cut and paste – find it, fix it – puzzle train

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