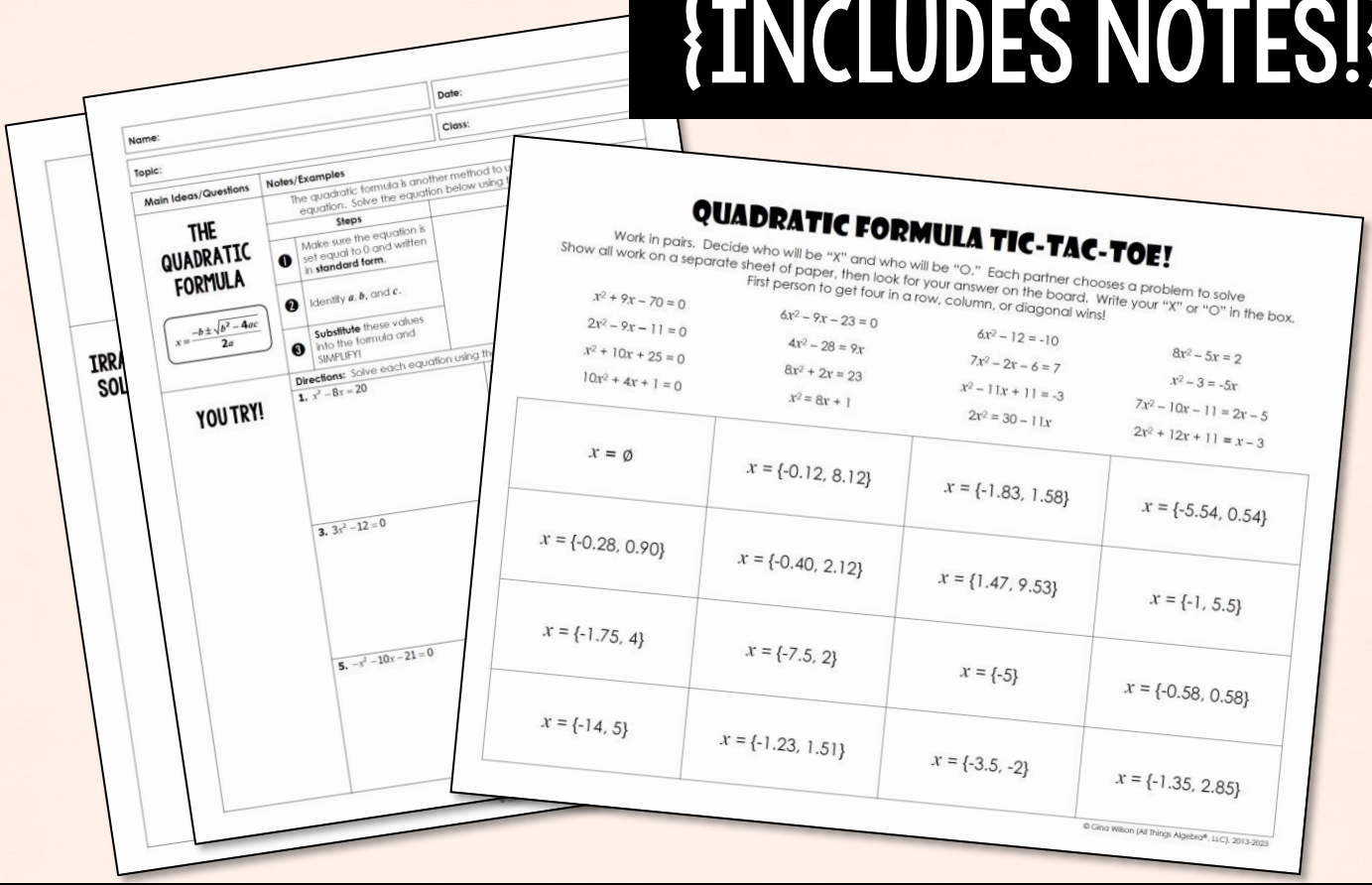
{INCLUDES NOTES!}



QUADRATIC *Formula*

TIC-TAC-TOE ACTIVITY

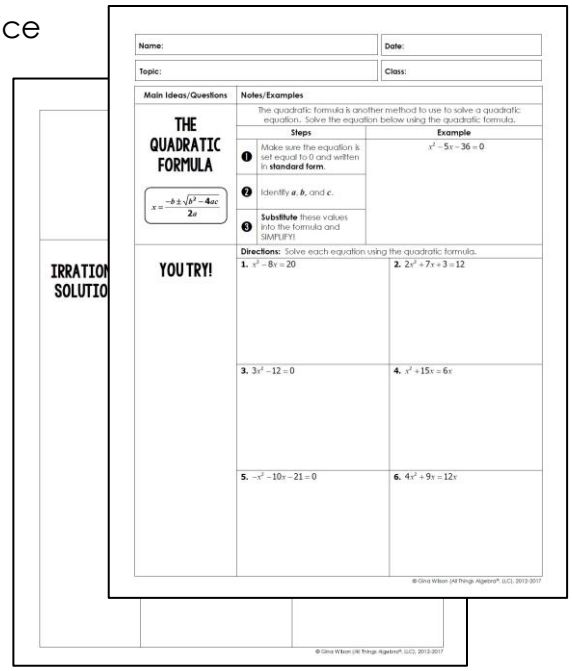
all things ALGEBRA®

THE QUADRATIC FORMULA

Notes & Tic-Tac-Toe Activity

Notes on the Quadratic Formula

There are 14 total problems to introduce and practice the Quadratic Formula. The notes cover equations written in $ax^2 + bx + c = 0$ and equations in which there are terms and both sides. This includes both rational and irrational solutions.

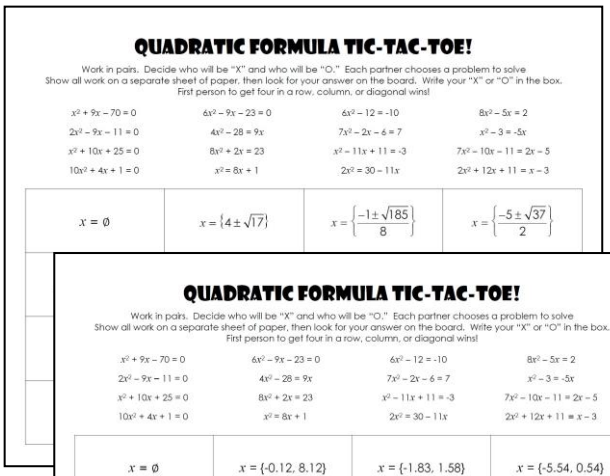

Name: Date:
Topic: Class:
Main Ideas/Questions
Notes/Examples
THE QUADRATIC FORMULA
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
The quadratic formula is another method to use to solve a quadratic equation. Solve the equation below using the quadratic formula.
Steps
Example
$x^2 - 5x - 36 = 0$
1 Make sure the equation is set equal to 0 and written in standard form.
2 Identify a, b, and c.
3 Substitute these values into the formula and SIMPLIFY!
YOU TRY!
Directions: Solve each equation using the quadratic formula.
1. $x^2 - 8x = 20$
2. $2x^2 + 7x + 3 = 12$
3. $3x^2 - 12 = 0$
4. $x^2 + 15x = 6x$
5. $-x^2 - 10x - 21 = 0$
6. $4x^2 + 9x = 12x$
© Gina Wilson (All Things Algebra®, LLC), 2012-2017

Tic-Tac-Toe Partner Activity

Students are given the board and asked to take out of sheet of paper to show work. They are paired up with another student. They must decide who will be X and who will be O.

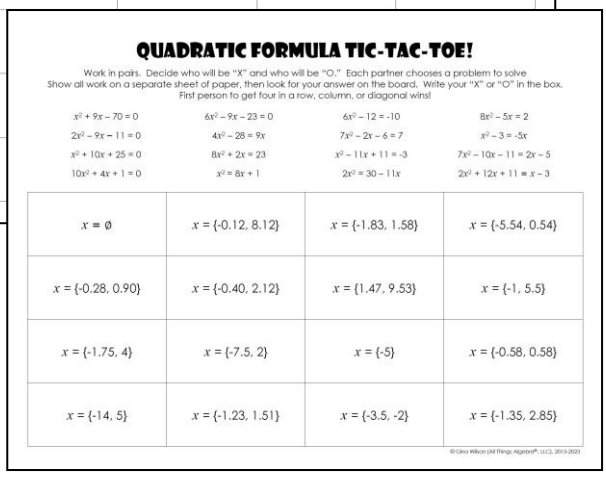
Each partner picks a problem, writes it down on their paper, and solves it. Then, they look for their solution on the board. They win if they get 4 in a row, column, or diagonal.

Problems include both rational and irrational solutions. A version with answers given in decimal form as well as a version with answers given in simplest radical form is included.


QUADRATIC FORMULA TIC-TAC-TOE!
Work in pairs. Decide who will be "X" and who will be "O." Each partner chooses a problem to solve
Show all work on a separate sheet of paper, then look for your answer on the board. Write your "X" or "O" in the box.
First person to get four in a row, column, or diagonal wins!

$x^2 + 9x - 70 = 0$	$6x^2 - 9x - 23 = 0$	$6x^2 - 12 = -10$	$8x^2 - 5x = 2$
$2x^2 - 9x - 11 = 0$	$4x^2 - 28 = 9x$	$7x^2 - 2x - 6 = 7$	$x^2 - 3 = -5x$
$x^2 + 10x + 25 = 0$	$8x^2 + 2x = 23$	$x^2 - 11x + 11 = -3$	$7x^2 - 10x - 11 = 2x - 5$
$10x^2 + 4x + 1 = 0$	$x^2 = 8x + 1$	$2x^2 = 30 - 11x$	$2x^2 + 12x + 11 = x - 3$

$x = \emptyset$	$x = \{4 \pm \sqrt{17}\}$	$x = \left\{\frac{-1 \pm \sqrt{185}}{8}\right\}$	$x = \left\{\frac{-5 \pm \sqrt{37}}{2}\right\}$


QUADRATIC FORMULA TIC-TAC-TOE!
Work in pairs. Decide who will be "X" and who will be "O." Each partner chooses a problem to solve
Show all work on a separate sheet of paper, then look for your answer on the board. Write your "X" or "O" in the box.
First person to get four in a row, column, or diagonal wins!

$x^2 + 9x - 70 = 0$	$6x^2 - 9x - 23 = 0$	$6x^2 - 12 = -10$	$8x^2 - 5x = 2$
$2x^2 - 9x - 11 = 0$	$4x^2 - 28 = 9x$	$7x^2 - 2x - 6 = 7$	$x^2 - 3 = -5x$
$x^2 + 10x + 25 = 0$	$8x^2 + 2x = 23$	$x^2 - 11x + 11 = -3$	$7x^2 - 10x - 11 = 2x - 5$
$10x^2 + 4x + 1 = 0$	$x^2 = 8x + 1$	$2x^2 = 30 - 11x$	$2x^2 + 12x + 11 = x - 3$

$x = \emptyset$	$x = \{-0.12, 8.12\}$	$x = \{-1.83, 1.58\}$	$x = \{-5.54, 0.54\}$
$x = \{-0.28, 0.90\}$	$x = \{-0.40, 2.12\}$	$x = \{1.47, 9.53\}$	$x = \{-1, 5.5\}$
$x = \{-1.75, 4\}$	$x = \{-7.5, 2\}$	$x = \{-5\}$	$x = \{-0.58, 0.58\}$
$x = \{-14, 5\}$	$x = \{-1.23, 1.51\}$	$x = \{-3.5, -2\}$	$x = \{-1.35, 2.85\}$