Solving Quadratic Equations

- Square Root Method
- Factoring
- Quadratic Formula
- Completing the Square

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Instructions

Print or copy page 3 and 4 double sided.
Place the paper so the examples are face down.
Cut along the dotted lines to create flaps.
Flip and fold the flaps inwards.
Glue the foldable into notes or on a piece of construction paper.
Go through the foldable with your students.

Solving a Quadratic Equation using the...

Square Root Method

Factoring Method

Quadratic Formula Method

Completing The Square Method

Solving a Quadratic Equation using the...

Steps:
1) Make the equation $ax^2 + bx + c$ equal to zero.
2) If a = 1, then find what has a product of c and a sum of b.
3) Factor
4) Set each factor equal to zero.
5) Solve for x.

1) $x^2 + 6x + 8 = 0$

2) $x^2 - 16 = 0$

eps:
Isolate the x^2 term
y itself.
ake the square root
f both sides.
3) Isolate x.

Steps:
1) Isolate the x^2 and x terms on one side.
2) Take half the coefficient of x, square it, and [illegible] it to both sid[illegible]
3) Factor & Si[illegible]
4) Take the squa[illegible] of both sides.
5) Isolate x

3) $x^2 + 8x$[illegible] $= 0$

4) $x^2 + 6x + 4 = 0$

Steps:
1) Make the equation $ax^2 + bx + c$ equal to zero.
2) Find the values of a, b, and c.
3) Use the quadratic formula to solve for x.

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

Solving a Quadratic Equation using the...

Factoring Method

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Solving a Quadratic Equation using the...

Steps:
1) Make the equation $ax^2 + bx + c$ equal to zero.
2) If a = 1, then find what has a product of c and a sum of b.
3) Factor
4) Set each factor equal to zero.
5) Solve for x.

1) $x^2 + 6x + 8 = 0$

$(x + 4)(x + 2) = 0$

$x + 4 = 0$ $\quad$ $x + 2 = 0$

$-4 \quad -4$ $\quad$ $-2 \quad -2$

$x = 4$ $\quad$ $x = -2$

2) $x^2 - 16 = 0$

$x^2 - 16 = 0$

$+16 \quad +16$

x^2

Steps:
1) Isolate the x^2 term by itself.
2) Take the square root of both sides.
3) Isolate x.

Steps:
1) Isolate the x^2 and x terms on one side.
2) Take half the coefficient of x, square it, and add it to both sides.
3) Factor & Simplify
4) Take the square root of both sides.
5) Isolate x

3) $x^2 + 8x = 0$

$8x$

$8x + 16 =$

$+ 4)^2 = 13$

$\sqrt{(x+4)^2} = \sqrt{13}$

$x + 4 = \pm\sqrt{13}$

$x = -4 \pm \sqrt{13}$

4) $x^2 + 6x + 4 = 0$

$a = 1, b = 6, c = 4$

$$x = \frac{-6 \pm \sqrt{6^2 - 4(1)(4)}}{2(1)}$$

$$x = \frac{-6 \pm \sqrt{36 - 16}}{2}$$

$$x = \frac{-6 \pm \sqrt{20}}{2} = \frac{-6 \pm 2\sqrt{5}}{2}$$

$x = -3 \pm \sqrt{5}$

Steps:
1) Make the equation $ax^2 + bx + c$ equal to zero.
2) Find the values of a, b, and c.
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$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$