

Section 8-1: Solving Quadratics by Factoring and Completing the Square**Warm-up:**

1) State the Quadratic Formula and what it is used for...

Find the discriminant and find the number and type of solutions to the quadratic. (**DO NOT SOLVE**)

2) $3x^2 + 6x + 3 = 0$

3) $6x^2 + 5x - 6 = 0$

4) $2x^2 + 1 = 0$

Solving Quadratics by FACTORING:

Solve by factoring...

REVIEW

1) $8x - 32 = 0$

2) $4x - 20 = 0$

3) $(x + 8)(x - 4) = 0$

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

5) $x^2 + 7x + 12 = 0$

6) $x^2 - 4 = 0$

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Solving Equations by Completing the square:

RECALL:

➤ The Square Root Method:

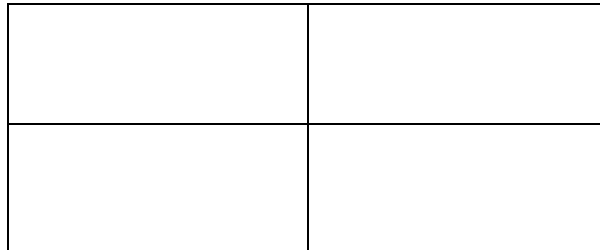
$$(x - 1)^2 = 16$$

Our **GOAL** for these problems is to add some number to $ax^2 + bx$, so that we factor it into a perfect square such as $(x - \text{"some number"})^2$.

Let us complete the square for... $x^2 + 20x$

1. We want to look at the coefficient of the "x" term. In this case it is _____.
2. Divide this coefficient by two. In this case it is _____.
3. Square of this number. In this case it is _____.
4. Add this number to your original polynomial and factor: In this case it is _____.

Another way to view it...



EXAMPLE

Complete the Square.

- 1) $x^2 + 16x + \underline{\hspace{1cm}}$ 2) $x^2 + 10x + \underline{\hspace{1cm}}$ 3) $x^2 - 18x + \underline{\hspace{1cm}}$

Name: _____ Date: _____ Block: _____

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Let us apply this knowledge to solving quadratic equations.

Solve by completing the square

1) $x^2 + 12x + 11 = 0$ 2) $x^2 + 12x - 13 = 0$ 3) $x^2 - 6x - 3 = 0$