

## Bellwork

Fill in the \_\_\_\_\_ by Completing the Square:

1.  $x^2 + 22x + \underline{\hspace{2cm}}$

2.  $x^2 - 14x + \underline{\hspace{2cm}}$

## Solving Quadratics by Completing the Square

Procedure:

Step 1: Move all x terms to one side of the equation, and move the constant to the other side.

Step 2: Divide **EVERYTHING** by what is in front of the squared term.

Step 3: Divide the number in front of the x term, the b, by 2 and add it to both sides squared.

Step 4: Factor the variable side by making it  $\left(x + \frac{b}{2a}\right)^2$

Step 5: Simplify the side with the constants.

Step 6: Take the square root of both sides.

Simplify the side with the radical term.

**NOTES: A. DO NOT FORGET +/-**

**B. If the constant is a neg,**

**Then pull the neg out and make it i.**

Step 7: Solve for x. Simplify if possible.

Step 8: CHECK YOUR ANSWER!!

## Examples

Solve by Completing the Square:

1.  $x^2 + 5x = 84$

2.  $3x^2 = 2x + 8$

## More Examples

Solve by Completing the Square:

3.  $x^2 - 7x - 8 = 0$

4.  $4 + 4x^2 = 17x$