Looking Back…

Perfect Square Polynomials:

How can I meet today's standards?

- *Solve quadratic equations by completing the square.*
- *Identify key features of quadratic functions by writing quadratic equations in vertex form.*

Warm Up:

Are these trinomials perfect squares?

1. $a^2 - 6x + 12$

2. $4r^2 - 20r + 25$

3. $9z^2 - 42z + 49$

4. $4r^2 - 20r + 24$

5. GEOMETRY The area of a rectangle is $25x^2 + 170x + 289$ square units. Find the dimensions of the rectangle. Is it a square?

Key Concept: Completing the Square

To complete the square for any quadratic expression of the form $x^2 + bx$, follow the steps below.

Step 1 Find _____ of *b*, the _____ of *x*.

Step 2 _____ the result from Step 1.

Step 3 _____ the result of Step 2 to $x^2 + bx$.

Example 1: Complete the Square

a) **Find the value of c that makes $x^2 + 8x + c$ a perfect square trinomial. Use the completing-the-square algorithm.**

b) **Find the value that makes the expression a perfect square trinomial.**

$x^2 + 40x + \_\_\_\_$

Example 2: Solve an Equation by Completing the Square

a) $x^2 - 10x + 14 = 5$

b) $x^2 + 6x - 16 = 0$

c) $x^2 + 8x - 1 = 8$

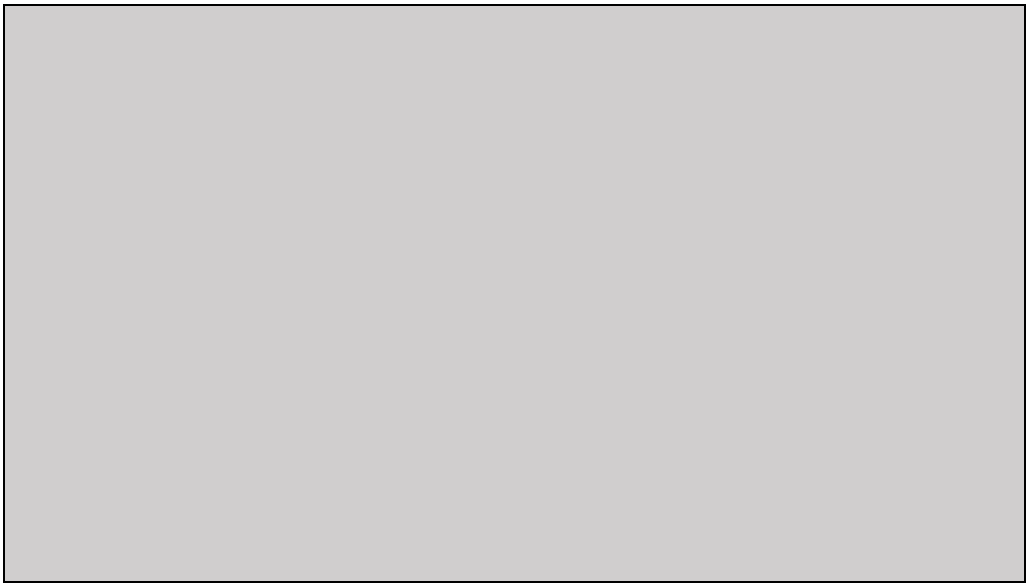
Example 3: Solving an Equation by Completing the Square with a not equal to 1

a) $-4x^2 + 32x - 72 = 0$

b) $4x^2 + 6x - 7 = 5$

c) $3x^2 + 12x + 81 = 15$

Key Concept: (Vertex Form)



To Be Continued: