Name _____ Date _____ Class _____

SKILL 82

Skills Readiness

Complete the Square

Completing the square makes it possible to solve a quadratic equation by creating a perfect square trinomial on one side of the equation so that you can find the square root of both sides.

If a quadratic is in the form $x^2 + bx$, follow these steps to complete the square and write the trinomial as the square of a binomial.

Step1: Add the quantity $\left(\frac{b}{2}\right)^2$ to the expression.	**Step 2:** Write the trinomial as $\left(x + \frac{b}{2}\right)^2$.
Example: $x^2 - 18x + \square$ $b = -18$, so $\frac{b}{2} = -9$ and $\left(\frac{b}{2}\right)^2 = (-9)^2 = 81$ $x^2 - 18x + 81$	Since $\frac{b}{2} = -9$, rewrite the expression as $(x - 9)^2$.

Practice on Your Own

Complete the square for each expression. Write the resulting expression as the square of a binomial.

1. $x^2 + 8x + \square$ _____

2. $x^2 - 12x + \square$ _____

3. $x^2 + x + \square$ _____

4. $x^2 - 10x + \square$ _____

5. $x^2 - 22x + \square$ _____

6. $x^2 - 3x + \square$ _____

7. $x^2 + 14x + \square$ _____

8. $x^2 - 24x + \square$ _____

9. $x^2 + 9x + \square$ _____

Check

Complete the square for each expression. Write the resulting expression as the square of a binomial.

10. $x^2 + 6x + \square$ _____

11. $x^2 - 16x + \square$ _____

12. $x^2 + 5x + \square$ _____

13. $x^2 - 20x + \square$ _____

14. $x^2 + 2x + \square$ _____

15. $x^2 - 7x + \square$ _____