Lesson 12: Forms of Quadratic Equations

- Let's explore different forms of quadratic equations.

12.1: Math Talk: Quadratics into Standard Form

Use the distributive property to mentally create equivalent expressions in standard form.

$(x + 1)(x + 1)$

$(x + 3)(x + 3)$

$(x - 2)(x - 2)$

$(x + 2)(x - 2)$

12.2: Matching Perfect Squares

Match each expression in column A with an equivalent expression from column B. Be prepared to explain your reasoning.

Take turns with your partner to match an expression in factored form with an associated function in standard form.

1. For each match that you find, explain to your partner how you know it's a match.

2. For each match that your partner finds, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

1. $(x + 9)^2$

2. $(x - 3)^2$

3. $(x + 8)^2$

4. $(4 - x)^2$

5. $(5 + x)^2$

6. $(x + 1)^2$

7. $(x - 1)^2$

8. $(3x + 1)^2$

- $f(x) = x^2 + 2x + 1$

- $g(x) = x^2 - 6x + 9$

- $h(x) = x^2 + 16x + 64$

- $j(x) = x^2 + 10x + 25$

- $k(x) = x^2 - 8x + 16$

- $m(x) = x^2 + 18x + 81$

- $n(x) = 9x^2 + 6x + 1$

- $p(x) = x^2 - 2x + 1$

12.3: Examining the Matches

1. In each expression written in standard form, identify the constant term.

2. In each expression written in standard form, identify the coefficient of the linear term.

3. What do you notice about the constant terms from the standard form in relation to the expression in factored form?

4. What do you notice about the coefficient of the linear terms from the standard form in relation to the expression in factored form?

5. What do you notice about the quadratic term from the standard form in relation to the expression in factored form?