Unit 8, Lesson 10

Quadratic Zeros

Let's explore zeros on a graph.

10.1 Which Three Go Together: Factored Quadratics

Which three go together? Why do they go together?

A. $(x+3)^2$

B. $(x+3)(x-3)$

C. $(x-3)(x-3)$

D. $x^2+6x+12$

10.2 Finding Solutions by Graphing

1. Use technology to graph the functions, then find the zeros.
   a. $f(x) = (x+2)(x-5)$

   b. $g(x) = (5x-4)(x-3)$

   c. $h(x) = x^2+5x+4$

   d. $k(x) = x^2+5x+3$

   e. $m(x) = 2x^2-13x-15$

   f. $n(x) = 2x^2-13x-10$

2. For each function, write an equation that would be solved by the zeros. Are the solutions exact or approximate?

10.3 Matching More Factored Expressions

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

- For each match that you find, explain to your partner how you know it's a match.
- For each match that your partner finds, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

Expressions in factored form

1. $(2a + 5)(a + 4)$
2. $(3a - 1)(a - 10)$
3. $(a + 7)(5a - 2)$
4. $(4a - 5)(4a - 5)$
5. $(4a - 5)(4a + 5)$
6. $(2a + 7)(9a + 4)$

Functions in standard form

- $f(x) = 2a^2 + 13a + 20$
- $g(x) = 16a^2 - 25$
- $h(x) = 5a^2 + 33a - 14$
- $j(x) = 16a^2 - 40a + 25$
- $k(x) = 18a^2 + 71a + 28$
- $m(x) = 3a^2 - 31a + 10$