Unit 8, Lesson 13

Constants in Quadratic Equations

Let's explore the constants in quadratic equations.

13.1 Math Talk: Halved and Squared

For each value of b, find $\left(\frac{b}{2}\right)^2$ mentally.

- $b = 6$
- $b = \frac{1}{2}$
- $b = \frac{2}{5}$
- $b = 0.8$

13.2 Solving Quadratics with Perfect Squares

Solve each of these equations for all values of x that make the equation true.

1. $(x + 2)^2 = 9$
2. $(x - \frac{1}{2})^2 = 4$
3. $(x + 1)^2 = 8 + 1$

4. $(x - \frac{1}{3})^2 = \frac{10}{9} - \frac{1}{9}$

5. $(x - 6)(x - 6) = 81$

13.3 Make It a Perfect Square

For each expression:

- Find a value that could be added as a constant term to make each expression a perfect square.
- Add the value you found, and rewrite the expression in factored form.

1. $x^2 + 20x$

2. $x^2 - 4x$

3. $x^2 - 2x$

4. $x^2 + x$

5. $x^2 + 5x$

6. $x^2 + 1.4x$