

# A1 S2 w9d1 9-6 Solve by Quadratic Formula

Alg1 Week 9 Mon Copy the Quadratic Formula Warm Up



**The Quadratic Formula (Skill 18)**

If  $ax^2 + bx + c = 0$ , then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

In the spaces provided below, copy the quadratic formula five times:

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Alg1 Week 9 Mon

## The Quadratic Formula



**N**ow that we know the formula, let's use it to solve some quadratic equations! All we need is the values of  $a$ ,  $b$ , and  $c$  to substitute into the formula. When written in standard form, the coefficient of the quadratic term is called  $a$ , the coefficient of the linear term is called  $b$ , and the constant term is called  $c$ .

### The Quadratic Formula (Part of Skill 17)

$$\text{If } ax^2 + bx + c = 0, \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

**Example 1:** Solve  $x^2 + 4x - 5 = 0$

$$a = 1, b = 4, \text{ and } c = -5$$

Substitute into the formula

$$x = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(-5)}}{2(1)}$$

$$x = \frac{-4 \pm \sqrt{16 + 20}}{2}$$

$$x = \frac{-4 \pm \sqrt{36}}{2}$$

$$x = \frac{-4 \pm 6}{2} \begin{cases} \rightarrow x = \frac{-4 + 6}{2} = \frac{2}{2} = 1 \\ \rightarrow x = \frac{-4 - 6}{2} = \frac{-10}{2} = -5 \end{cases}$$

$$x = 1 \text{ or } x = -5$$

**Example 2:** Solve  $x^2 - 2x - 3 = 0$

$$a = \_, b = \_, \text{ and } c = \_$$

Substitute into the formula

$$x = \frac{-(\_) \pm \sqrt{(\_)^2 - 4(\_)(\_)}}{2(\_)}$$

$$x =$$

$$x =$$

$$x = \_ \begin{cases} \rightarrow \\ \rightarrow \end{cases}$$

$$x = \_ \text{ or } x = \_$$

Use the *quadratic formula* to solve each quadratic equation. Check your answers on page 9.6 C.

1.  $x^2 - 7x + 10 = 0$

2.  $x^2 + 3x - 4 = 0$

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3.  $-x^2 + 9 = 0$

4.  $x^2 + 8x + 15 = 0$

5.  $2x^2 - 5x + 3 = 0$

6.  $4x^2 - 6 = 5x$

7. Solve using comp sq  $10x = -x^2 - 25$

8.  $3x^2 = x - 4$

9. Solve using comp sq  $x^2 = 10x$

10.  $x^2 + 1.5x - 4.5 = 0$

Scrambled answers for 1-10:  $\emptyset$ ,  $\{-5\}$ ,  $\{-5, -3\}$ ,  $\{-4, 1\}$ ,  $\{-3, 3\}$ ,  $\{-3, 1.5\}$ ,  $\{-\frac{3}{4}, 2\}$ ,  $\{-2, \frac{1}{3}\}$ ,  $\{1, \frac{3}{2}\}$ ,  $\{2, 5\}$