

Algebra Essentials and Applications Internet Activity

ME1 Quadratic Formula Investigations

We will begin with a simple example. To find the solution(s) of the quadratic equation

$$x^2 = 4$$

the equation must first be written in the form $ax^2 + bx + c = 0$.

$$\begin{aligned} x^2 &= 4 \\ x^2 - 4 &= 0 \end{aligned}$$

1. What is a ? What is b ? What is c ?

2. What are the solutions?

To find the solution(s) of the quadratic equation

$$x^2 = 2x + 15$$

rewrite the equation in the form $ax^2 + bx + c = 0$.

$$\begin{aligned} x^2 &= 2x + 15 \\ x^2 - 2x - 15 &= 0 \end{aligned}$$

3. What is a ? What is b ? What is c ?

4. What are the solutions?

To find the solution(s) of the quadratic equation

$$x(6x + 1) = 1$$

rewrite the equation in the form $ax^2 + bx + c = 0$.

$$\begin{aligned} x(6x + 1) &= 1 \\ 6x^2 + x &= 1 \\ 6x^2 + x - 1 &= 0 \end{aligned}$$

5. What is a ? What is b ? What is c ?

6. What are the solutions? Rewrite these solutions as fractions.

Now find the solution(s) of the quadratic equation

$$x^2 + 4x + 5 = 0.$$

7. What is a ? What is b ? What is c ?

8. What are the solutions?

This is an instance in which the discriminant is negative. The equation has no real solutions.