

6.24

Roots of a Quadratic Equation with Leading Coefficient 1

• Example 1

What are the roots of $x^2 - 6x + 5 = 0$?

Because $x^2 - 6x + 5 = (x - 5)(x - 1)$, the values of x for which $x^2 - 6x + 5 = 0$ are $x = 5$ and $x = 1$.

These values are the roots of the equation

Warning. NOT ALL QUADRATIC EXPRESSIONS CAN BE FACTORED AS $ax^2 + bx + c = a(x - r_1)(x - r_2)$ WHERE r_1 AND r_2 ARE REAL NUMBERS. WHEN SUCH A FACTORIZATION IS IMPOSSIBLE, THERE ARE NO ROOTS FOR THE QUADRATIC EQUATION.

● ● ● CHECK YOURSELF 1

What are the roots of $x^2 - 2x - 8 = 0$?

● ● ● CHECK YOURSELF ANSWER

1. 4, -2.

6.24 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Solve each of the following quadratic equations.

1. $x^2 - 2x - 3 = 0$

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

3. $x^2 - 7x + 6 = 0$

4. $x^2 + 3x - 10 = 0$

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

6. $x^2 - 3x - 18 = 0$

7. $x^2 + 4x - 21 = 0$

8. $x^2 - 12x + 32 = 0$