

Solving Quadratics using Square Roots

Objective:

Solving Quadratics
where $b = 0$

$$y = ax^2 + c \quad \text{or} \quad y = a(x + 2)^2 + c$$

using RADICALS

1

Solve each equation for x:

Don't forget when you take a square
root it has two possible answers

Example 1:

$$x^2 = 64$$

What two numbers makes this equation true:

$$(\quad)^2 = 64 \quad \text{and} \quad (\quad)^2 = 64$$

2

Example 2:

$$x^2 = 49$$

Example 3:

$$x^2 = 45$$

3

When taking the square root of a negative number it is imaginary $\sqrt{-1} = i$

Example 4:

$$x^2 = -16$$

Example 5:

$$x^2 + 8 = -4$$

4

Solve each quadratic using square roots. Find the exact solution. If there is no real solution, write “no real solution”

1. $x^2 - 16 = 0$

2. $x^2 - 25 = 0$

3. $x^2 = 64$

4. $x^2 = -16$

5

Remember when solving using square roots you must isolate the ()² value

Example 6:

$$x^2 - 6 = 10$$

Example 7:

$$(x + 2)^2 = 4$$

6

Solve each quadratic using square roots. Find the exact solution. If there is no real solution, write “no real solution”

5. $6x^2 - 54 = 0$

6. $x^2 - 12 = 0$

7. $3x^2 + 7 = 22$

8. $-x^2 - 8 = 0$

9. $2x^2 - 5 = 43$

10. $6(x^2 - 2) = 12$