

Essential Question: How do we solve a quadratic equation?

Do Now:

Solve for x .

1) $x^2 + 5 = 5$

2) $3x^2 = 48$

3) $x^2 + 4 = 0$

What is a quadratic equation?



A quadratic equation is an equation of the form $ax^2 + bx + c = 0$ where a , b , and c are real numbers and $a \neq 0$.

Methods used to Solve Quadratic Equations:

- square root method
- factoring
- quadratic formula
- completing the square
- graphing

➤ **Square Root Method: Quadratic Equations in the form of $x^2 = d$**

- $d = 0$ _____
- $d > 0$ _____
- $d < 0$ _____

➤ **Factoring: Quadratic Equations in the form of $ax^2 + bx + c = 0$, where $a \neq 0$**

1. $x^2 - 7x + 12 = 0$

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



Let's try some more examples.

3. $2x^2 - 2x = 40$

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

5. $(x + 1)(x + 2) = 12$

6. $100x^2 = 121$

Solve each equation.

1. $x^2 + x - 6 = 0$

2. $x^2 + 2x - 15 = 0$

3. $d^2 - 2d = 0$

4. $x^2 = 121$

5. $y^2 = 6y$

6. $y^2 = 8y + 20$

7. $30 + x = x^2$

8. $x^2 + 3x - 4 = 50$

9. $2x^2 + 7 = 5 - 5x$

10. $x(x - 2) = 35$

11. $y(y - 3) = 4$

12. $x(x + 3) = 40$