



QUADRATIC EQUATION I

TEACHER'S REMINDER

Remember to have the following tools ready before starting your lesson:

1. YoTeach chatroom
2. Realtimeboard
3. Badaboom quiz

(see lesson plan for details)



QUADRATIC EQUATION I

LESSON OBJECTIVES

- Know the basic concepts of quadratic equations
- Use factorization to solve quadratic equations

CLASS ACTIVITY: YOTEACH!

- Q1: Share an example of a polynomial
- Q2: Share an example of an equation



DEFINITION

- A quadratic equation is an equation that can be written in the standard form:

$$ax^2 + bx + c = 0$$

where x is unknown and a is nonzero.

BASICS

- We can solve a quadratic equation by **factoring** and using **The Principle of Zero Products**.
- **Factoring** changes the form of the equation to be the product of 2 multiples.
- **The Principle of Zero Products** states: If $ab = 0$, then either $a = 0$, $b = 0$, or both a and $b = 0$.

SOLVE: $(4t + 1)(3t - 5) = 0$

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1. Factorize: We see the equation is already in the factorized form

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2. Solve using the Principle of Zero Products: Since $ab = 0$, we can set each factor equal to 0.

$$(4t + 1) = 0$$

$$4t = -1$$

$$t = -\frac{1}{4}$$

subtract 1

divide by 4

$$(3t - 5) = 0$$

$$3t = 5$$

$$t = \frac{5}{3}$$

add 5

divide by 3

Solution: $t = -\frac{1}{4}$ or $t = \frac{5}{3}$

SOLVE: $x^2 + 7x + 6 = 0$

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1. Factorize: Let's factorize the LHS.

$$x^2 + 7x + 6 = (x + 6)(x + 1) = 0$$

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$$x^2 + 7x + 6 = (x + 6)(x + 1) = 0$$

2. Set each factor equal to 0.

$$(x + 6) = 0$$

$$x = -6$$

$$(x + 1) = 0$$

$$x = -1$$

Solution: $t = -6$ or $t = -1$

SOLVE: $x^2 + 10x = -25$

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1. Factorize: Be careful! Make sure to put all the terms on the LHS first.

$$x^2 + 10x + 25 = 0$$

$$(x + 5)(x + 5) = 0$$

$$(x + 5)^2 = 0$$

SOLVE: $x^2 + 10x = -25$

1. Factorize: Be careful! Make sure to put all the terms on the LHS first.

$$x^2 + 10x + 25 = 0$$

$$(x + 5)(x + 5) = 0$$

$$(x + 5)^2 = 0$$

2. Set each factor equal to 0. In this case, we only have 1 repeated root.

$$(x + 5) = 0$$

$$x = -5$$

Solution: $t = -5$

CLASS ACTIVITY: REALTIMEBOARD

- Solve the quadratic equations using factorization.



CLASS ACTIVITY: BADABOOM

- Quadratic Equations Quiz

**BADA
BOOM**

CLASS ACTIVITY: YOTEACH!

- Reflection: What have you learnt today?



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