

TEACHING UNIT VII

MATHS

QUADRATIC FORMULAS

INTERNATIONAL TEAMWORK AS A METHOD TO MAKE OUR
SCHOOLS INCLUSIVE OF DIVERSITY



TEACHING UNIT NETHERLANDS II**MATHS: Quadratic formulas****1. INFORMATION:**

- a. Date: **23-09-2015**
- b. Level: **3 TTO (14, 15, 16 year old students)**
- c. Subject: **Mathematics**
- d. Theme: **Quadratic formulas**
- e. Teacher: **Jeroen Bernardus**

2. AIMS/GOALS How to solve binomials and trinomials**3. COMPETENCES/SKILLS (Which competences/skills will you develop in this unit)**

- **Calculation skills**
- **algebra skills**
- **cooperation skills**
- **language skills**
- **presentation skills**

4. METHODOLOGY

- a. Type of lesson:
An interactive and cooperative lesson
- b. Type of interaction (organization in classroom):
Introduction, instruction and group work guided by Dutch students
- c. Teaching aids: (like digital board, pc's ...)
Paper, pen/markers, pencils, ruler, geometrical triangles, white board, pc, iPad/tablet

5. TEACHING:

- a. Contents:
Working with quadratic formulas: Introduction 5 min, instruction 15 min, interactive 30 min, evaluation 10 min.
- b. Activities:
How to solve binomials and trinomials, find the solution of the words by solving equations and make up your own word by choosing your own equations

6. EVALUATION:

a. Individual

Did you manage to crack the egg and make up your own word.

b. Group evaluation

Did you manage to give a proper presentation and explanation to the Italian and Spanish students

The Quadratic formula

Assignment 1

Solve the equations below. Find the corresponding solutions in the boxes above the equations and write the letter of the equation in the correct box.

7	1.31
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0.19	4	0.5	1.5
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1.5	1.33	4	4.24	-0.24	1
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0.2	-0.24	4.5
-----	-------	-----

12	0	1.4	-3.5	8
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7

1	4.24	1.31
---	------	------

1.4	-2	-0.24	11	0.19
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1.73	1.4	0.75	7	-2	4.24	12	7	1.5
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A $5x^2 + 49 = 42x$

B $x^2 + 4x + 4 = 0$

C $(3x - 4)^2 = 0$

D $2x^2 - 4x = 30$

E $-2x(3x + 4) = -x^2 - 11x$

H $x^2 = 8(x - 2)$

I $(2x + 1)^2 - 8x = 0$

L $x(x - 13) + 12 = 0$

N $(4 - \frac{1}{2}x)^2 = 0$

O $(x - 2)^2 - 5 = 0$

P $7x^2 = 21$

R $(2x - 7)(4x + 3) = -44x$

S $-x^2 + 3x - 2\frac{1}{4} = 0$

T $4x^2 + 1 = 6x$

U $2x^2 - 31x + 99 = 0$

Y $25x^2 - 10x = -1$

The Quadratic formula

Assignment 2

Think of a word that's related to the topic **sustainability**.

Create boxes from the amount of letters that the word contain.

Make up your own equations and write the answers in one of the boxes.

Let your fellow classmate find the word by solving the equations

The Quadratic formula

Instruction

How do you solve a quadratic equation?

- 1 Check if there is a simple way to solve the equation. This could be by factorising, using cards or completing the square.
- 2 If there is no simple way to solve the equation, reduce it to zero then simplify and factorise or use the quadratic formula.

Example

$$(5 - x)(3x + 2) = 0$$

This has the form $A \times B = 0$, so

$$5 - x = 0 \text{ or } 3x + 2 = 0$$

$$x = 5 \text{ or } 3x = -2$$

$$x = 5 \text{ or } x = -\frac{2}{3}$$

Example

$$(x - 3)^2 - 7 = 0$$

$$(x - 3)^2 = 7$$

This has the form $A^2 = 7$, so

$$x - 3 = \sqrt{7} \text{ or } x - 3 = -\sqrt{7}$$

$$x = 3 + \sqrt{7} \text{ or } x = 3 - \sqrt{7}$$

Example

$$-5x^2 - 35x - 30 = 0$$

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

$$(x + 1)(x + 6) = 0$$

This has the form $A \times B = 0$, so

$$x + 1 = 0 \text{ or } x + 6 = 0$$

$$x = -1 \text{ or } x = -6$$

Copy the instruction!

- 5 Give the solution to the inequality.

Example

The Quadratic formula