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Lesson plan: Equations with unknown in denominator

School:

Gymnázium a Jazyková škola s právem státní jazykové zkoušky Zlín, Czech Republic

Subject:

Mathematics

Topic:

Equations with unknown in denominator

Class:

O4.A / kvarta (fourth grade of eight-year study)

Teacher:

Tereza Běloňová

Duration:

45 minutes

Educational targets:

The pupil is able to solve the given examples and verify their solution by exam.

The pupil is able to determine and discuss the number of solutions of the calculated equation.

The pupil is able to recognize an equation with an unknown in the denominator and determine the conditions for solving the equation.

The pupil is able to solve simple equations with the unknown in the denominator.

Requirements:

The pupil knows the basic procedures for solving linear equations.

The pupil can determine how many solutions has the given equation.

The pupil is able to test the correct solution.

Teaching aids:

For teacher: Computer with Internet connection and projector, Whiteboard, schoolbook.

For students: exercise book, schoolbook, pen, computer or tablet (mobile phone)

Schoolbook:

J. Herman a kol.: Matematika pro nižší ročníky víceletých gymnázií – Rovnice a jejich soustavy (kvarta), Prometheus

Relation between subjects:

Educational area:

Plan of the lesson:

Plan of division of class	Time	Contents	Notes
Introduction to the lesson (frontal method of education with dialogue with pupils)	5 minutes	At the beginning the teacher describes the course of the lesson and puts a quick repetition of procedures for solving different types of equations that they already know.	<i>How do we proceed in solving equations?</i> <i>How do we solve the equations with parentheses or fractions?</i>
Repetition of solutions of known types of equations	20 minutes	Pupils will work individually or in pairs over a given escape game. They will work on a computer, or tablets (phones). Pupils will proceed individually (or in pairs) in solving the examples. In case of problems in calculations, the teacher will help them individually.	Key competences: <ul style="list-style-type: none"> - Problem solving competence - Communication competence - Working competence - Social and personal competence https://docs.google.com/presentation/d/e/2PACX-1vSz9eZ-QyAszw69xKti_YWELTEmvPwkyB6s9NFEQdXEkAPR7pzYuldHuvyWJdeyZQH-U-PgBrsegX4C/pub?start=true&loop=false&delayms=60000
Exposition of new topic (frontal method with discussion about the problem)	15 minutes	In this part we have prepared 2 or 3 exercises. Using appropriate questions, we will find together with students a procedure for solving equations with the unknown in the denominator. We will determine the conditions of the solution and explain what it means. We will solve both examples together and discuss the right solution.	Key competences: <ul style="list-style-type: none"> - Problem solving competence - Working competence - Communication competence Exercises: $\frac{x-1}{x+2} + 2 = 0$ $\frac{1}{x-1} = \frac{2}{x+1}$ $3 + \frac{2}{x+5} = \frac{x+7}{x+5}$

Conclusion of the lesson (frontal method of education, discussion with the pupils)

5 minutes

Teacher summarizes the lesson and uses questions to repeat the newly introduced concepts together with the pupils.

Key competences:

- Communication competence
- Working competence (Team – working competence)

Homework from schoolbook
