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Ministry of Education, Science, Technology and Innovation

PROFESSIONAL DEVELOPMENT PROGRAM

TO OBTAIN ADVANCED LICENSE FOR TEACHERS

TEACHER OF "MATHEMATICS" SUBJECT

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Abbreviations

PE	Primary education
HSE	Higher secondary education
LSE	Lower secondary education
MED	Municipality Education Directorate
FE	Faculty of Education.
EI	Education Inspectorate
PIK	Pedagogical Institute of Kosova
ISCED	International Standards Classification of Education
CC	Core Curriculum
KCF	Kosova Curriculum Framework
SFTD	Strategic Frmerwork on Teachers Development
SCTL	State Council on Teacher Licensing
MESTI	Ministry of Education, Science, Technology and Innovation
PISA	Program for International Student Assessment
KESP	Kosovo's Education Strategic Plan
ICT	Information and Communication Technology
AI	Administrative instruction
TPE	Teacher Performance Evaluation
SBPD	School-based professional development
TPD	Teachers professional development;

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Content

1. Introduction

The teaching profession is a dynamic profession that goes through different stages of career development. It is related to the academic qualification to exercise the teaching profession and to the continuous professional development oriented with standards and performance indicators. From this perspective, teachers are prepared in several aspects, such as:

- act with professionalism, honesty and integrity;
- To have appropriate and necessary scientific knowledge for the relevant teaching area;
- To develop quality teaching practices;
- To update pedagogical, methodical, didactic knowledge and skills, through continuous professional development and research of new teaching practices;
- To create positive professional relations, and
- To cooperate with parents and the school community in the best interest of the students, respectively in function of each student's learning.

The Professional Development Program for obtaining an advanced teaching license - for teachers of the "Mathematics" subject, is part of the teachers' professional development package, which guides the development of teachers to achieve high standards of work and behavior, related to expectations for advanced teachers. The program was designed by the working group, established by the State Council for Teachers Licensing (SCTL) to help:

- All teachers of "Mathematics" subject in preparation for the qualifying exam and for performance evaluation for obtaining an advanced teaching license;
- All mechanisms dealing with the organization of the qualification exam for advanced teaching license;
- The Education Inspectorate (EI) as the bearer of the external evaluation process of teachers' performance (TPE) for advanced teaching license; as well as
- Municipal Education Directorates (MED) and schools to organize professional development for all teachers and to develop preparations with the teachers who will enter in this process.

The program was designed in response to the requirements for the competences of teachers that MESTI has set in the 'Strategic Framework for Teachers Development in Kosova' document (SFTD)1, in teacher licensing system documents, requirements for teachers seeking advanced teaching license.

Program goals and objectives of professional development for an advanced license for teachers of the mathematics

The goals of designing professional development program for the qualification purpose for obtaining an advanced teaching license - teacher of the "Mathematics" subject are:

1 Taking as a basis the introductory reference of the document in which it is emphasized that the Framework will be a living document which will be supplemented and developed continuously along with new developments in the field of teacher development and the licensing process, the working group has further developed important aspects of the areas of professional development and professional competencies related to obtaining an advanced teaching license. They are reflected in this orientation program of professional development.

- To offer an orientation program to help all teachers of the "Mathematics" subject in pre-university education, namely the mathematics teachers in Lower Secondary Education (LSE) and Higher Secondary Education (HSE), to carry out professional preparatory activities, training for the qualification exam and performance evaluation for obtaining an advanced teaching license;
- To offer an orientation program to help MEDs, schools and all providers of professional development programs for in-service teachers, to develop and offer teacher professional development programs (TPD), which help prepare them for obtaining an advanced teaching license;
- To provide a mandatory and unified program for mathematics teachers, seeking advanced teaching license, in order for them to achieve a qualitative preparation, to successfully meet the requirements of the qualification exam process and TPE for advanced license.

The program aims for the teacher to:

- To recognize and implement the educational legislation that is applied in the school, focusing on those of the last years, namely the main issues that have been decided by MESTI, the responsibilities regarding the school documentation, liabilities and work obligations;
- To show competence in recognizing and effectively implementing competency-based curriculum - of mathematics subject programs in the school;
- to possess the competencies, based on the professional standards for teachers, to directly influence the effectiveness of the teaching process, for a successful teaching;
- to demonstrate skills in the pedagogical field for selecting models for organizing the classroom environment, elaborating concepts, encouraging discussions, using methods and activities according to learning, the use of student evaluation techniques, etc.;
- to use ICT skills in the learning process, as one of the latest innovations in teaching based on digital competences;
- to plan and develop effective lessons according to contemporary teaching and learning methodologies, competency-based curriculum requirements.
- to demonstrate professional ethics, positive and objective attitudes and behaviors for the students well-being, demonstrate the involvement of students in the learning process and school activities, as well as demonstrate professional ethics;
- to master the application of the spelling rules of the Albanian language during the teaching-learning process;
- to show responsibility in knowing basic concepts and scientific laws of the subjects as well as their application in practice and in real life, in accordance with the age specifics of students in the class where they teach;
- to link and actualize subject concepts with global priority that relate to cross-curricular issues and related to education for democratic citizenship, issues of gender equality, education for peace, globalization and interdependence, media education, education for sustainable development, etc., with the aim of raising students' awareness and preparing them to face the challenges of society today and in the future.

2. Program content for advanced mathematics teacher license

The content of the orientation program for obtaining the advanced license for teaching - teacher of the "Mathematics" subject - is organized in two parts:

- **First part** includes the main areas of professional development, professional competencies and expected results according to professional competencies;
- **Second part** includes two test samples for the mathematics subject at each educational level: lower secondary education (LSE) and higher secondary education (HSE).

Main areas of professional development, professional competencies and expected results

The main areas of professional development where the competencies of teachers for advanced license are verified are used as a guiding umbrella to define the expectations on which the requirements/questions are organized for the assessment instruments for the qualification examination and the performance evaluation, for obtaining the advanced teaching license. The main areas of professional development defined for this orientation program are:

- the official school[2] documentation, which is related to the upbringing-educational activity of the teachers in the school;
- Curricula - Subject program of mathematics;
- Aspects of pedagogy, teaching and assessment methodology, as well as the use of ICT in the teaching and learning process in the mathematics subject;
- Aspects of inclusiveness and professional ethics;
- Aspects of spelling the Albanian language;
- The scientific content of the subject, according to the subject programs of the mathematics.

The main areas of professional development are defined as:

- professional competencies as well as the expected results for the realization of these competencies; and
- relevant recommended literature in order to acquire the competences of the field/subject.

Escalation of knowledge, skills, attitudes and professional values, which are related to the competencies of each field/subject of the qualification exam and TPE, will help the teacher to identify the issues on which to focus during the preparations for this process, and for continuous professional development.

2 It refers to the framework of legal policies of pre-university education in Kosova, administrative instructions and documents and educational policies that are implemented in the school, focusing on those of recent years.

Expected results and recommended literature for each area of professional development are outlined in the following section.

2.1. Field: Official school documentation

Competence "Responsible implementation of legal requirements related to official school documentation"	Recommended literature
Expected results *Teacher of mathematics:* • implements the legislation for the pre-university education system, administrative instructions and other documents related to the design and implementation of the school curriculum; • demonstrates concrete implementation of MESTI's instructions in order to improve the teaching-learning process; • implements the legal, administrative and organizational requirements for exercising the duties and responsibilities of the profession; • respects the student's rights, freedoms and responsibilities; • respects the duties, rights, freedoms and responsibilities of the teacher; • implements the requirements of administrative instructions and guidelines for the teachers professional development.	• the Law no. 04/L-032 on Pre-University Education in the Republic of Kosova (2011). https://gzk.rks-gov.net/ActDocumentDetail.aspx?ActID=2770 • The framework for ensuring the quality of school performance in Kosova (MESTI & IPK). **Error! Hyperlink reference not valid.** • Administrative Instruction no. 22/2016 on Professional Assets (Departments) of schools. Prishtina: MESTI https://gzk.rks-gov.net/ActDetail.aspx?ActID=15199 • Administrative Instruction no. 14/2023 on the Licensing System and Teaching Career MESTI. https://masht.rks-gov.net/udhezim-administrativmashti-nr-14-2023-per-sistemin-e-licencimit-dhe-karrieren-ne-mesimdhenie/ • Administrative Instruction MESTI no. 16/2023 on Teachers Professional Development. https://masht.rks-gov.net/udhezim-administrativ-mashti-nr-16-2023-per-zhvillimin-profesional-te-mesimdhenesve/

2.2. Field: Curricula - Subject program of mathematics

Competence "Effective implementation of competency-based curriculum - programs of the mathematics subject"	Recommended literature
Expected results *Teacher of mathematics:* • implements the subject curriculum/learning program of the mathematics subject respecting all aspects of the organization of the subject curriculum; • effectively uses curriculum principles in planning and implementing the subject program of mathematics; • designs and finds additional curricular materials that help in the acquisition of concepts and skills provided in the curricula of the mathematics subject for the relevant level of education (LSE or HSE);	• Curricular Framework of Pre-University Education of the Republic of Kosova (revised 2016); Curricular Framework of Pre-University Education of the Republic of Kosova - MEST (rks-gov.net) • Core Curriculum LSE, grades VI-IX, 2016; CORE CURRICULUM OF LOWER SECONDARY EDUCATION OF KOSOVA (Grades VI, VII, VIII and IX) - MEST (rks-gov.net) • Core Curriculum HSE, grades X-XII, 2016; CORE CURRICULUM OF HIGHER SECONDARY EDUCATION OF KOSOVA (gymnasiums - grades X, XI, XII) - MEST (rks-gov.net)

• designs and finds additional curricular materials that enrich the formation of students and encourage their independent and critical thinking; • designs learning outcomes for learning topics or topics group, chapters, in accordance with orientations and requirements of the core curriculum and of programs of mathematics field/subject; • categorizes the learning outcomes of the program according to learning achievement levels; • shows vertical coherence of the curriculum (continuity and adaptability of mathematics programs); • selects teaching tools necessary to achieve the goal and learning outcomes of the mathematics subject program; • provides information that demonstrates the connection of mathematics and other sciences in the context of everyday life.	• Curricula of the mathematics subject with the curriculum based on competences, grades VI-IX (2017 – 2020); SUBJECT/CURRICULUMS - SIXTH GRADE - MEST (rks-gov.net) • Curricula of the mathematics subject with the curriculum based on competences, grades X-XII (2017- 2019); SUBJECTS/CURRICULUMS - TENTH GRADE GYMNASIUMS - MEST (rks-gov.net) • Effective teaching and curriculum, prof. Naser Zabeli (2023); • Teaching theory andstrategies – Constructivist approach, prof. Xhavit Rexhaj (2019);

2.3. Field: Aspects of pedagogy, methodology, assessment and use of ICT in primary education teaching

Competence I "Possession of specific pedagogical competence necessary and sufficient for teaching the mathematics"	Recommended literature
Expected results *Teacher of mathematics:* • demonstrates commitment, motivation and responsibility during his/her work; • adapts his/her work to the physical, social, emotional and cognitive development of students; • demonstrates respect, trust and objectivity with students; • identifies students with special needs (students with learning difficulties and talented students); • plans short-term and long-term work with special need students; • demonstrates a positive attitude towards science and the mathematics subject; • cultivates love and passion for the mathematics subject; • creates a suitable, motivating and satisfying climate for students; • works with parents to improve student progress.	• Curricular documents – NQF and UN for Education Levels (ISCED II and ISCED III); • Subject curricula of the mathematics subject (grades 6-9 and 10-12); • Practical Guide to Curriculum Implementation - Curriculum Area: Mathematics (MEST & IPK, 2016) • Teacher's guides for personal development for grades 6, 7, 8 and 9 (KEC, 2023). https://kec-ks.org/publikime/ • KosEd program: Pedagogical practice based on evidence. https://www.kosed.org/sq/copy-of-peer-led-evaluation-program • Effective teaching and curriculum, prof. Naser Zabeli (2023);

Competence II "The use of effective methods and strategies in teaching the mathematics"	Recommended literature
Expected results *Teacher of mathematics:* • select appropriate methods and techniques for achieving a certain competence or learning results; • uses methods and techniques that promote the independent and creative thinking of students; • plans and develops lessons based on student-centered competence-based teaching; • uses methods and techniques that promote the development of creative thinking of students; • uses methods and techniques that ensure equality and inclusiveness; • uses mathematical processes in teaching - learning the mathematics;	• Curricular documents – NQF and UN for Education Levels (ISCED II and ISCED) III - part of the teaching methodology; • Subject curricula of the mathematics subject (grades 6-9 and 10-12) - part of the instructions for the teaching methodology; • Practical Guide to Curriculum Implementation - Curriculum Area: Mathematics (MEST & IPK, 2016) • Project-based teaching - Handbook for secondary school teachers (KEC, 2022). https://kec-ks.org/wp-content/uploads/2023/07/Mesimdhenia-e-bazuar-ne-projekte-Doracak-2.pdf • KosEd program: Pedagogical practice based on evidence. https:/www.kosed.org/sq/copy-of-peer-led-evaluation-program
Competence III "The use of effective methods and strategies for the students assessment in the mathematics field"	Recommended literature
Expected results *Teacher of mathematics:* • applies different types of assessment during the learning process; • demonstrates various techniques for student assessment; • uses methods and techniques of formative assessment that encourage students self-assessment (or to assess their friend) their progress in the mathematics subject by performing various tasks and exercises; • uses various techniques and evidences for student assessment; • explains the steps and principles of designing a test for students; • develops tests that apply the principles of designing and giving points in a test; • evaluates students based on achievement levels;	• The evaluation framework of pre-university education students in Kosova (2020). https://masht.rks-gov.net/ëp-content/uploads/2022/06/korniza-komplet-shqip-2.pdf • Administrative instruction for the students assessment in the pre-university education of the Republic of Kosova (MESTI, 2022) https://masht.rks-gov.net/udhezimi-administrativ-mashti-06-2022-per-vleresimin-e-nxenesve-ne-arsimin-parauniversitar-te-republikes-se-kosoves/ • Administrative Instruction: Code of Ethics for Student Assessment (2011). https://masht.rks-gov.net/ëp-content/uploads/2022/05/ua-kodi-i-etik.pdf • Assessment for learning - Handbook for gymnasium teachers (KEC, 2022). https://kec-ks.org/ëp-content/uploads/2023/07/Vleresimi-per-te-nxene-Doracak-per-mesimdhenes-2.pdf • Formative assessment (MEST & BEP, 2013). • Summative assessment and test design - Handbook for teachers (MEST & GIZ, 2015). • Question samples – Achievement Test, – State Matura Exam, (Tests from the Division for Standards and Evaluation in MESTI) Subject: mathematics.

Competence IV "The use of information and communication technology to enhance the quality of teaching and learning in mathematics"	Recommended literature
Expected results *Teacher of mathematics:* • presents mathematical materials using appropriate technologies such as: Power Point, Excel, Math Type in Word; • encourages students to make presentations in mathematics using computer programs known to them; • finds and uses materials from websites to enrich and perfect teaching-learning; • includes students in curricular projects of the mathematics subject or in integrated curricular projects which are combined with research, finding and using materials from websites.	• **Textbooks, teaching materials to help teachers of mathematics subject used in grades VI - IX of lower secondary education as well as in grades X - XII of higher secondary education, which focus on the use of ICT in teaching-learning.** • **Teacher's guide - Traveling through the Internet (MESTI).** https://masht.rks-gov.net/udhezues-per-mesimdhenes/ • European Digital Competence Framework for Teachers (DigCompEdu) • https://shkollat.org/

2.4. Field: Inclusiveness and ethics in the profession

Competence "Applying the principles of inclusiveness and ethical rules in the profession as necessary elements in the work of the teacher"	Recommended literature
Expected results *Teacher of mathematics:* • Applies the principles of inclusiveness when working with students and the entire school community; • demonstrates a positive attitude towards the peculiarities of students, the way they learn, as well as supports them in achieving learning results; • uses communication strategies aimed at inclusiveness of students in the learning process and treats all students equally and with respect; • respects professional ethics and behaves responsibly towards students, parents, teaching colleagues and school management;	• Administrative Instruction for the use of the individual education plan (MEST, 2016). https://MASHT.rks-gov.net/udhezimet-administrative-2016 • The Individual Education Plan (IEP) and the guide for drafting the Individual Education Plan for children with special educational needs (MEST, 2017). Error! Hyperlink reference not valid. • Good practices of inclusiveness (MESTI, 2017) https://MASHT.rks-gov.net/publikime-dhe-dokumente-per-femijetnxenesit-me-aftesi-te-kufizuara-dhe-me-veshtiresi-ne-te-nxene • Manual Didactic manual for the prevention of violence (MEST & Save the Children, 2014) https://MASHT.rks-gov.net/uploads/2018/07/manuali-per-parandalimin-e-dhunes-ne-shkolla.pdf • Peace and Resilience Building Teaching Curriculum Handbook - Lower Secondary Education (MEST, 2020). https://masht.rks-gov.net/doracaku-i-kurrikules-se-mesimdhenies-per-paqe-dhe-ndertim-te-qendrueshmerise-arsimi-i-mesem-i-ulet/

	• Handbook for teachers - Interculturalism in education (MESTI, 2023). https://masht.rks-gov.net/doracak-per-mesimdhenes-nderkulturalizmi-ne-arsim/ • Teacher's Guide - Understanding Disability (MESTI, 2022). https://masht.rks-gov.net/udhezues-per-mesimdhenes-te-kuptojme-aftesine-e-kufizuar/ • Framework for the inclusion of students with special educational needs in higher secondary schools (MESTI, 2022). https://masht.rks-gov.net/kornize-per-perfshirjen-e-nxeneseve-me-nevoja-te-vecanta-arsimore-ne-shkollat-e-mesme-te-larta/ • Teacher's handbook with activities on children's rights (MESTI, 2021). https://masht.rks-gov.net/doracak-per-mesimdhenes-me-aktivitete-mbi-te-drejtat-e-femijeve-2/

2.5. Field: Spelling aspects of the Albanian language

Competence "Applying rules of the Albanian language spelling"	Recommended literature
Expected results *Teacher of mathematics:* • owns rules of the Albanian language spelling; • demonstrate implementation of spelling rules during teaching activities and other activities at school/educational institution.	• Spelling of the Albanian language.

2.6. Field: Scientific content of the mathematics subject

Competence "Competent application of scientific content in teaching of the mathematics subject"	Recommended literature
Expected results *Teacher of mathematics:* • distinguishes the main concepts and habits with which the mathematics subject operates in grades VI-IX and X-XII; • describes the way of forming mathematical concepts in grades VI-IX and X-XII; • describes the vertical development of mathematical concepts and habits, from one year to another;	• Concepts in the field of the mathematics, expectations for students given in the UN for Education Levels (ISCED II and ISCED III); • Subject curricula of the mathematics subject (grades 6-9 and 10-12) - part of mathematics concepts and general learning outcomes; • Textbooks of the mathematics subject, as well as other resource materials that cover the content of the subject for grades VI-IX for lower secondary education and X - XII for higher secondary education.

• distinguishes the interdependence of mathematical concepts from each other and the connection with the concepts of other subjects; • solves mathematical problem situations accurately and in different ways which use the concepts and skills of the programs in grades VI-IX and X-XII; • communicates mathematical ideas in different forms accurately and comprehensibly, in contexts inside and outside mathematics; • uses accurate and convincing information about the user values of mathematics in other sciences and in everyday life.	

3. Test samples for teachers of mathematics

The test samples for the qualification exam for teachers of the mathematics have been developed and organized keeping in mind the main areas and competencies in which the knowledge and skills of teachers are verified, with the aim of obtaining an advanced teaching license, at the relevant educational level, in LSE or in HSE.

Sample models for the qualification exam for obtaining the advanced license in teaching are organized into six main areas, where part of them are the basic competencies which together with the expected results, are references in the design of the test requirements/questions.

The following table presents the summary of the fields - columns of the qualification exam test, for which the requirements/questions are developed according to the three levels of achievements.

No.	Test columns	Points on the test	Number of questions with alternatives, Basic level V) 1= 1 point	Number of questions with alternatives, Base level V) 2 = 2 points	Number of questions with alternatives, high level V) 3 = 3 points
1	Official school documentation	4 points	0	2	0
2	Curricula - subject program	6 points	0	3	1
3	Pedagogy and methodology aspects	13 points	4	33 3	1
4	Aspects of inclusiveness and professional ethics	3 points	1	1	0
5	Spelling aspects of the Albanian language	4 points	0	2	0
	Total of questions part 1	30 points	5	11	2

6.	Scientific content of the subject	40 points	5	10	5
	Total of test questions	70 points	10 questions	21 questions	7 questions

The following sample tests include several requirements/questions (not all in number) for each field - column of the qualification exam for teacher. They contain questions with multiple alternatives, according to difficulty levels, with the possibility of correct answers in one or more alternatives.

3.1. Test sample of the "Mathematics" subject, Lower Secondary Education (LSE)

The following sample tests include several requirements/questions (not all in number) for each field - column of the qualification exam for teacher. They contain questions with multiple alternatives, according to difficulty levels, with the possibility of correct answers in one or more alternatives.

I. Official school documentation

1. Based on the Law on Pre-University Education in Kosova (2011), the School Steering Committee at levels 1, 2 and 3 of ISCED has specific duties and competences. Which of the following tasks is not direct responsibility of the school steering committee: **1 point**

   a. to draft school rules, to be approved by the municipality;
   b. to decide on the use of the salary budget for the school personnel;
   c. to approve the extracurricular activities of the school, according to the proposal of the school principal;
   d. to decide on the dress code of employees and students

2. The school performance quality assurance framework is built on the interaction between: **1 point**

   a. main principles of the curriculum and the main competencies of the curriculum;
   b. main principles of the curriculum and the curriculum areas;
   c. main principles of the curriculum and the school quality areas;
   d. main principles of the curriculum and the pre-university education goals;

II. Curricula - Subject program of mathematics

3. The mathematics learning outcomes for grades 3 and 4 are organized around: **1 point**

   a. six (6) competencies - general learning outcomes in the field of mathematics;
   b. seven (7) competencies - general learning outcomes in the field of mathematics;
   c. eight (8) competencies - general learning outcomes in the field of mathematics;
   d. nine (9) competencies - general learning outcomes in the field of mathematics.

4. The general learning outcome *"The student models and solves problems from everyday life using powers, letter expressions, graphic representations, etc.", belongs to the concept of mathematics:* **2 points**

   a. Processing of notes and probability;
   b. Numbers, algebra and function;
   c. Form and space;
   d. Measurements and geometry.

III. Pedagogy and methodology aspects

5. During a lesson, the math teacher asks the students the question *"Judge with your eyes (up to 5 cm error) the length of the tile on the classroom floor". This requirement develops the expression of opinion:* **1 point**

   a. interpretatively;
   b. analytically;
   c. comparatively;
   d. evaluative.

6. Students manage to learn up to 90% of the learning outcomes in the classroom if: **1 point**

   a. read the text;
   b. listen carefully to the teacher;
   c. watch pictures or videos;
   d. create models and present their work.

7. When planning the summary test, the first step a teacher should take, is: **1 point**

   a. determining the types of questions and the points the test will have;
   b. determining the level and length of the test;
   c. design of the test evaluation scheme;
   d. determining the learning outcomes to be assessed in the test.

IV. Aspects of inclusiveness and professional ethics

1. The teacher of mathematics has planned a visit with her students of the IX/1 grade in the mathematical gymnasium in the municipality of Prishtina. What is the most effective thing for the teacher to do so that even Genti, a child that moves with a wheelchair, can visit this gymnasium together with his classmates? **1 point**

   a. asks another teacher to accompany Genti on this visit.
   b. goes beforehand to the mathematical gymnasiums and identifies the problems that her student may face and makes a preliminary planning.
   c. encourages him and asks Genti to stay at home on the day of the visit.
   d. asks Genti to come accompanied by a family member, who will accompany him.

2. An inclusive classroom is one where: **1 point**

   a. Assessments are repeated until each student achieves the minimum results;
   b. The teacher teach by referring only to the teaching text to reduce the students' workload;
   c. There is an active involvement of students with high results;
   d. The teacher creates different learning practices and experiences for each student.

V. Spelling aspects of the Albanian language

8. Which of the following alternatives is written correctly? **1 point**

   a. 8 grades of the school
   b. grades 8 of the school
   c. 8-th grades of the school
   d. grades 8 of the school

9. Which of the following alternatives is written correctly? **1 point**

a. parents' Council of Kosova
b. Parents' Council of Kosova
c. parents' Council of Kosova
d. parents' Council of Kosova.

VI. Scientific content of the mathematics subject

10. If + implies : and × implies – and : implies + and – implies ×
then 38 + 19 – 16 × 17 : 3 = ? **1 point**

a. 12
b. 16
c. 19
d. 18

11. Which of the sign swaps below would fix the expression **1 point**
35 + 7 × 5 : 5– 6 = 24?

a. × and –
b. + and ×
c. : and +
d. - and +

12. Ani has *x beads. Ada has three more beads than Ani. Albana has four times as many beads as Ada. The expression that shows the number of beads Albana has is:* **1 point**

a. 4x+ 3
b. 3x+ 4
c. 4(x+ 3)
d. x+ 12

13. Which of the following expressions shows that the product of two numbers *a and b is 6 units greater than their sum?* **1 points**

a. ab + 6 >a + b
b. ab = a + b + 6
c. ab + 6= a + b
d. ab >a + b + 6

14. The smallest whole number belonging to the union of sets A=]-1,3[and B=]0,5] is: **1 point**

a. -1
b. 0
c. 3
d. 5

15. 25 boys and 32 girls are registered in a sports club. $\frac{2}{5}$ of boys and $\frac{1}{2}$ of girls are registered in tennis. The club leader randomly selects a child from the children registered for tennis. The probability that this child is a boy is: **1 point**

a. $\frac{5}{13}$
b. $\frac{8}{13}$
c. $\frac{10}{57}$
d. $\frac{25}{57}$

The problem situation is given: Agim drove the car for the first 2 hours with speed at

70 km/h and the other three hours at a speed of 80 km/h. Circle the correct alternative for questions 22 and 23.

16. Agim in total traveled: **1 point**

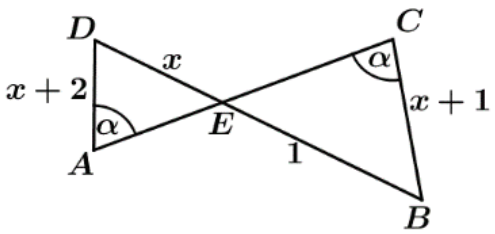
a. 150 km
b. 250 km
c. 340 km
d. 380 km

17. The average speed at which Agimi traveled is: **1 point**

a. 75 km/hour
b. 76 km/hour
c. 77 km/hour
d. 78 km/hour

18. In the given figure, x is: **1 point**

a. 2
b. 1
c. $\sqrt{2}$
d. $\sqrt{3}$



VII. Test sample of the "Mathematics" subject, Higher Secondary Education (HSE)

Official school documentation

19. The strategic framework for the teachers development in Kosova defines the standards of the profession which are broken down into performance indicators, which are specified for different career stages of the career. These indicators are referred to in a harmonized manner: **1 point**

a. knowledge, skills, attitudes and values that students should possess and demonstrate in higher secondary education;
b. knowledge, skills, attitudes and values that students should possess and demonstrate in vocational education;
c. knowledge, skills, attitudes and values that students should possess and demonstrate teachers of pre-university education;
d. knowledge, skills, attitudes and values that students should possess and demonstrate directors of educational institutions.

20. Which of the following alternatives represent forms of school-based professional development, which are specified by the Administrative Instruction for professional development of teachers? **1 point**

a. Opportunity to participate in international conferences
b. Counseling and mentoring among colleagues.
c. Workshops and seminars organized by the school.
d. Taking an online teaching course.

Subject program

21. What is one of the main goals of the mathematics program in higher secondary education? **1 point**

a. To prepare students for international mathematics competitions.
b. Ensure that teachers have sufficient resources for online learning.

c. To develop the key competences of lifelong learning and competences for students in the field of mathematics.

d. Help parents prepare financial plans for their children.

22. One of the statements below is NOT true. In the mathematics subject program, in the mathematical competence "Mathematical modeling", the main indicators are: **1 point**

a. determining the situation in real life;
b. modeling in mathematical language;
c. finding the mathematical solution;
d. interpretation of mathematical concepts.

VIII. Pedagogy and methodology aspects

23. Which of the pedagogical approaches below is most focused on developing critical thinking and problem solving in students? **1 point**

a. Traditional pedagogy
b. Constructive pedagogy
c. Transmitting pedagogy
d. Authoritarian pedagogy.

24. Which of the teaching styles is considered the most effective for differentiated instruction in a class with different levels of students? **1 point**

a. Frontal teaching
b. Teaching in homogeneous groups
c. Individual teaching
d. Teaching in heterogeneous groups.

25. **During a lesson, the teacher asks the students this question** *"Based on the given graph of the function $y = f(x)$, what do you think about the graphs of the functions $y = f(x) + a$, $y = f(x+a)$?". This question develops in student the expression of opinion:* **1 point**

a. Reproductive;
b. Comparative;
c. Implementing;
d. Synthesizing.

IX. Aspects of inclusiveness and professional ethics

26. Which of the following principles is essential to professional ethics and inclusiveness in teaching? **1 point**

a. Positive discrimination based on disability.
b. Respect and inclusion of all students regardless of background, gender, abilities.
c. Using the same teaching methods for all students to ensure fairness.
d. Setting different standards for students based on their culture.

27. In a class where there are students with learning difficulties, the teacher: **1 point**

a. Sets the same learning outcomes for all students in the class, but performs differentiated work with different students;
b. Concentrates the work and focuses only on students with the low level of achievement;
c. Sets different learning outcomes for different students;
d. Concentrates the work and focuses only on students with the high level of achievement.

X. Spelling aspects of the Albanian language

28. Which of the following alternatives is written correctly? **1 point**

a. The procedures for the implementation of the elective curriculum are determined by the minister's instruction.
b. The procedures for the implementation of the elective curriculum are determined by the minister's instruction.
c. The procedures for the implementation of the elective curriculum are determined by the Minister's instruction.
d. The procedures for the implementation of the elective curriculum are determined by the Minister's Instruction.

29. Which of the following alternatives is the correct spelling of the compound word? **1 point**

a. Benevolent
b. Benvolent
c. Benevolnt
d. Benevolen

XI. Scientific content of the subject

30. If : implies + and – implies : and + implies × and × implies –, then which of the following statements is true? **1 point**

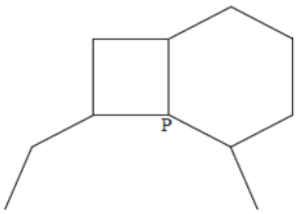
    a. $27 + 15 \times 5 : 6 - 2 = 14$
    b. $27 : 15 - 5 + 6 \times 2 = 43$
    c. $27 : 15 \times 5 - 6 + 2 = 20$
    d. $27 \times 15 + 5 : 6 - 2 = 18$

31. Which of the following sets of signs can be placed in place of * in the expression 25 * 2 * 6 = 4 * 11 * 0? **1 point**

    a. ×, –, ×,+
    b. ÷, –, ×,+
    c. ×,=,+, –
    d. ×, +,+, ×

32. Alba will build a mosaic on the floor of her room. To form the mosaic, she used three regular polygons that meet at point P as shown in the figure. Two of the polygons are a square and a regular hexagon. The number of sides of the third polygon is: **1 point**

    a. 8
    b. 10
    c. 12
    d. 16



33. The number of ice creams sold in a candy shop increases when the outside temperature rises. What type of correlation does this statement describe? **1 point**

    a. Negative correlation
    b. Poor correlation
    c. Positive correlation
    d. There are no correlation.

34. Estimate which of the following equations has the root x = 9? **1 point**

a. log(1+x)=2

b. $\log_2(3x-5)=3$

c. $\log_3(1+x)^2=2$

d. $10^{\log x}=9$

35. *Kathy's father is four times older than Kathy. Five years ago he was seven times older. How old is each now? What is the expression that connects their ages?* **1 point**

a. 4x– 5= 7(x– 5)

b. 4 x – 5)= 7 x)

c. 4x -5)= 7x– 5

d. 4x – 5= 7x– 5

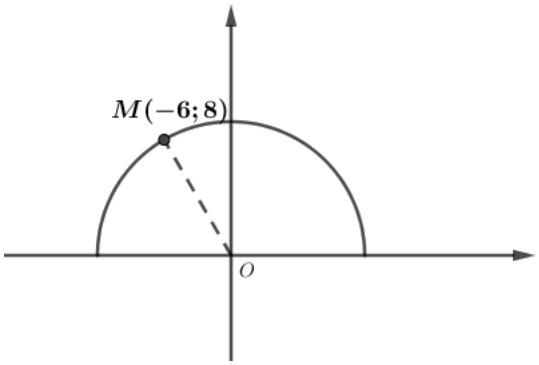
36. The area of the semicircle (in square units) in the figure is: **1 point**

a. 6p

b. 8p

c. 25p

d. 50p



37. I given f(x)=3x+1 and f(g(x))= 3x2+6x+1. Then g(x) = 1 **point**

e. x2-x

f. *x*2+2*x*

g. *x*2+*x*

h. *x*2+1

38. Which relation is true in the figure? **1 point**

a. $\vec{b}+\vec{c}=\vec{a}$
b. $\vec{a}+\vec{b}=\vec{c}$
c. $\vec{c}-\vec{a}=\vec{b}$
d. $\vec{b}-\vec{c}=\vec{a}$

Regarding the situation "The owner of a market noticed that 40% of customers buy milk, 25% of of customers buy bread and 55% of customers do not buy anything", answer the following question.

39. The probability that a randomly selected customer bought bread and not milk is: **1 point**

a. 0.05
b. 0.5
c. 0.25
d. 0.55

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