

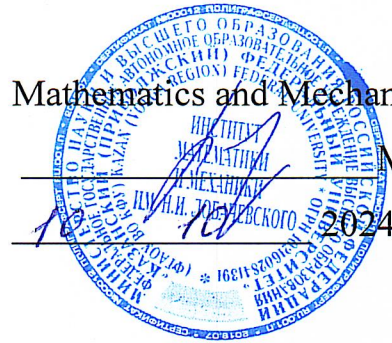
MINISTRY OF SCIENCE AND HIGHER EDUCATION
OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education "Kazan
(Volga Region) Federal University"
Nikolai Lobachevsky Institute of Mathematics and Mechanics

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**Evaluation System for Entrance Examination
in Mathematics**



Entrance examinations for Bachelor's and Specialist's degree programs are conducted in-person and (or) using distance learning technologies.

It takes 3 hours and 55 minutes (235 minutes) to complete entrance examination in Mathematics. The paper consists of two parts containing 19 tasks.

Part 1

Part 1 consists of 12 short-answer tasks. Each of the tasks No. 1-12 is considered to be completed correctly if the examinee gave the correct answer in the form of an integer or a finite decimal. Correct answers to tasks No. 1-12 give 1 point.

Part 2 (tasks with detailed answers)

Part 2 consists of 7 detailed-answer tasks. The number of points awarded for tasks No. 13-19 depends on completeness of the solution and correctness of the answer.

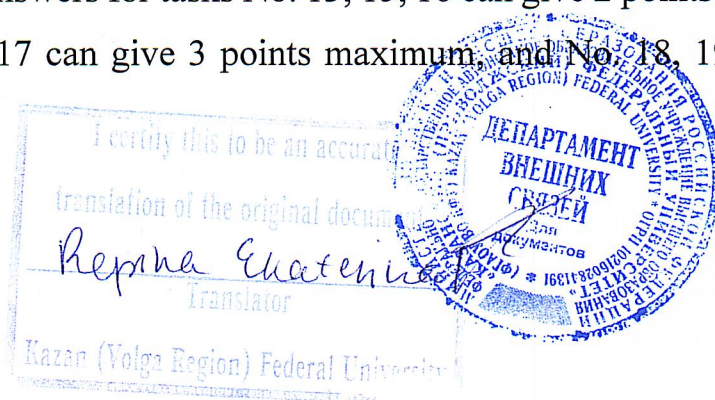
The answer sheet should be filled in with the number of the task (13, 14, etc.) first, followed by the full reasoned solution and the answer. Answers should be written down clearly and legibly.

General requirements for the detailed-answer tasks: the solution must be mathematically correct, complete; all possible cases must be considered. The solution methods, the forms of its recording and the forms of answer recording can vary. The maximum score is awarded for a solution with reasonably obtained correct answer. 0 points is given for a correct answer with no solution text.

The examiners only check the mathematical content of the solution, and do not take into account the peculiarities of the writing.

When performing the task, any mathematical facts contained in the textbooks included in the federal list of textbooks approved for use in state-accredited educational programs of secondary general education may be used without proof and references.

In part 2, answers for tasks No. 13, 15, 16 can give 2 points maximum, answers for tasks No. 14, 17 can give 3 points maximum, and No. 18, 19 can give 4 points maximum.



Criteria for evaluation of detailed-answer tasks

Task No. 13	
Content	Score
Both parts of the task have reasonably obtained correct answers	2
Part "a" has a reasonably obtained correct answer OR incorrect answers that have been obtained due to a computational error, but there is a correct sequence of all steps for solving both parts: "a" and "b"	1
The solution does not meet any of the criteria listed above	0
Maximum score	2

Task No. 14	
Content	Score
There is a correct proof of the statement in part "a", and reasonably obtained correct answer in part "b"	3
Reasonably correct answer has been obtained in part "b" OR There is a correct proof of the statement in part "a", and incorrect answer in part "b" obtained due to computational error, but with reasonable solution	2
There is a correct proof of the statement in part "a", OR an incorrect answer was obtained in part "b" due to computational error, but the solution is reasonable OR a reasonably correct answer is received in part "b" using the statement in part "a", but the part "a" is not completed	1
The solution does not meet any of the criteria listed above	0
Maximum score	3



Task No. 15	
Content	Score
Reasonably obtained correct answer	2
Reasonably obtained answer that differs from the correct one by eliminating or adding one or several points, OR an incorrect answer is obtained due to a computational error, but there is a correct sequence of all steps of the solution	1
The solution does not meet any of the criteria listed above	0
Maximum score	2

Task No. 16	
Content	Score
Reasonably obtained correct answer	2
The mathematical model is constructed correctly	1
The solution does not meet any of the criteria listed above	0
Maximum score	2

Task No. 17	
Content	Score
There is a correct proof of the statement in part "a", and reasonably obtained correct answer in part "b"	3
Reasonably correct answer has been obtained in part "b" OR There is a correct proof of the statement in part "a", and incorrect answer in part "b" obtained due to computational error, but with reasonable solution	2
There is a correct proof of the statement in part "a", OR an incorrect answer was obtained in part "b" due to computational error, but the solution is reasonable OR a reasonably correct answer is received in part "b" using the statement in part "a", but the part "a" is not completed	1
The solution does not meet any of the criteria listed above	0
Maximum score	3



Task No. 18	
Content	Score
Reasonably obtained correct answer	4
The range of a, differing from the target one only by excluding/including several points, is obtained using correct reasoning	3
At least one correct parameter value has been obtained via correct reasoning	2
The problem is correctly reduced to investigation of the mutual arrangement of curves (analytically or graphically)	1
The solution does not meet any of the criteria listed above	0
Maximum score	4

Task No. 19	
Content	Score
Reasonably correct answers are obtained in parts "a", "b" and "c"	4
Reasonably correct answers are obtained in part "c" and either in part "a" or "b"	3
Reasonably correct answers are obtained in parts "a" and "b" OR Reasonably correct answer is obtained in part "c"	2
Reasonably correct answer is obtained in either part "a" or "b"	1
The solution does not meet any of the criteria listed above	0
Maximum score	4

The maximum primary score is 32 points, which corresponds to 100 test points.

The minimum passing score is 40 test points. If an applicant receives less than 40 test points, the entrance examination is considered failed.

