

**Private Higher Educational Establishment-Institute
“Ukrainian-American Concordia University”**



APPROVED

Rector

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January 19, 2024

**PROGRAM
of the Mathematics examination
for international entrants onto bachelor's degree programs
within specialties 073 “Management” (field of study 07
“Management and Administration”) and 292 “International
Economic Relations” (field of study 29 “International
Relations”**

Discussed and approved
at the meeting of the
UACU Admissions Committee
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The program of the written examination in the Mathematics for international entrants onto the undergraduate (bachelor's) degree programs within the specialty 073 "Management" (in the field of study 07 "Management and Administration") and the specialty 292 "International Economic Relations" (in the field of study 29 "International Relations").

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PROGRAM
of the examination in the Mathematics for entrants
to the Ukrainian-American Concordia University

The entrance examination in the Mathematics is designed and held in the form of tests, which involve assessing the entrants' level of the following skills:

- the number system, percentages;
- polynomials, algebraic functions, exponents, radicals;
- linear and quadratic equations, inequalities, lines in the plane;
- exponential functions and systems of equations and inequalities;
- analyze what procedure to use to solve a problem;
- solve problems graphically and numerically.

Test tasks in the entrance exam in Mathematics are represented by three levels of difficulty:

- Level 1 is a level of reproduction of knowledge, which determines the ability of the entrant to reproduce the acquired knowledge (this level is the information minimum of the discipline);
- Level 2 is a level of application of skills and abilities that the entrant acquired at secondary school;
- Level 3 is a level of transformation; to successfully complete the tasks of this level, the entrant must have knowledge of all sections of the program and be able to apply them in practice.

I. MATH TEST STRUCTURE

The Mathematics test consists of three types of tasks:

1. Single choice tasks.
2. Matching.
3. Open-ended task with a detailed answer.

The instructions for each task are given at the beginning of each type of a task.

1. Single choice tasks

The task consists of an introductory question and five possible answers, from which you need to choose the correct one and write it in the corresponding field.

Example:

1. Calculate $\frac{3^{10}}{3^5}$.

A	B	C	D	E
81	6	243	9	27

2. Find slope of the line $y = 2 - 4x$.

A	B	C	D	E
2	-4	-2	4	0

3. Find 42% of 150.

A	B	C	D	E
63	42	6300	3.57	357

Each correct answer is evaluated by 8 *points*. The maximum number of points you can score by correctly answering 6 single-choice tasks is 48 *points*.

2. Matching

This task requires matching options in the first column with the answers in the second column that satisfy the statement.

Example:

Match each equation with its solution set.

- | | |
|--|-------------------------------------|
| 1. $7x - 3\left(x + \frac{1}{2}\right) = 4(2 - x) + \frac{5}{2}$ | A) $\{-5, 5\}$ |
| 2. $4x^2 - 5x - 6 = 0$ | B) $\{-5, 9\}$ |
| 3. $\frac{3}{1-x} = \frac{6x}{2x-8}$ | C) $\left\{-\frac{3}{4}, 2\right\}$ |
| 4. $ 2 - x = 7$ | D) $\{-2\}$ |
| | E) $\{-2, 2\}$ |
| | F) $\left\{\frac{3}{2}\right\}$ |

Each correct answer is evaluated by 8 *points*. The maximum number of points you can score by correctly solving the task is 32 *points*.

3. Open-ended task with a detailed answer

Tasks require detailed written answers without suggested options.

Example:

A chemist adds a 12% acid solution to an 16% acid solution to get 50 liters of a 15% acid solution. How many liters of each solution should be taken?

The maximum number of points is 20.

Thus, *the maximum number of points that can be obtained by the entrant in the entrance exam in Mathematics is 200 points, given that the countdown begins with 100 points.*

II. Criteria for assessing the knowledge, skills and abilities of applicants at the entrance exam in mathematics

Task type	Maximum score	Evaluation object	Evaluation
Single choice tasks	48 points	Compliance of knowledge, skills, abilities of students with program requirements	6 correct answers - 48 points. Each correct answer gives 8 points. Points are not awarded if there is no answer.
Matching	32 points	Compliance of knowledge, skills, abilities of students with program requirements	4 correct answers - 32 points 8 points are deducted for each mistake. Points are not awarded if there is no answer.
Open-ended task with a detailed answer	20 points	Compliance of knowledge, skills, abilities of students with program requirements	For correct solution of 1 task – 20 points. 1 point is deducted for each mistake. Points are not awarded if there is no answer or the answer correct, but the solutions missing.

If an applicant fails to appear for the entrance examination at the scheduled time for no good reason, they are not allowed to take the subsequent entrance examination and do not participate in the competition.