



Details/Requirements and Sample Questions for the Rutgers – New Brunswick Math Placement Test (2023-2024)

(This is not intended for Rutgers Camden or Rutgers Newark students)

Rutgers (NB) uses the ALEKS PPL (McGraw-Hill) placement test, part of an adaptive learning platform widely used by universities nationwide. Each take of the test allows you up to 3 hours to submit up to 30 open-ended (not multiple choice) questions. Most students spend 60-90 minutes on the assessment. This test is adaptive, meaning your answers determine subsequent questions. Because of this, you cannot go back and change or review your answers to previous questions. Click [here](#) for a brief overview video. Before you start the test, a tools tutorial will show you how to enter the answers.

Respondus Lockdown Browser™ is required for this test: [Click here to download the required version prior to testing](#). A functioning webcam is required for Respondus Monitor to operate. Chromebooks will not work. [Click here](#) to check the system requirements at the bottom of the page. If you do not have access to the necessary technology, please email otp@irap.rutgers.edu. When asked for ID, any photo ID will work (high school, license, etc.) If you are under 18, [please obtain the consent of a parent or guardian prior to testing](#).

If you have ACCOMMODATIONS do not take this test – contact the [Office of Disability Services](#) and [email us](#)

LINK TO MATH TEST: [CLICK HERE](#)

Log in with your netid (ie. abc123), not your nine-digit RUID number, select CONTINUE and proceed to take test.

During the test, do **not** use your own calculator. An on-screen calculator will be provided when required. Scrap paper is permitted – dispose after testing. Once you begin the test, you must complete it in one sitting.

TECHNICAL PROBLEMS

Stop testing and immediately send an email from your Rutgers email address to otp@irap.rutgers.edu including your RUID and the exact issue encountered, with a screenshot if possible.

CLICK [HERE](#) TO SEE THE SCORE GUIDE

RETESTING: Students unsatisfied with their initial placement score are strongly encouraged to complete the 8 hours of required study in the ALEKS learning modules and complete a second test. Most students improve on their second attempt. The highest of the two scores will be used for your math placement. After you take your first test, **you must complete the 8 hours of individually customized learning modules available to you on your [ALEKS page](#) to unlock the 2nd test attempt**, which can be completed after a 48 hour cool-off period. While the 30 day/72 hour test deadline is waived for the 2nd attempt, **it is in your best interest to retest as soon as possible to avoid delays in the enrollment process and course registration. Retests should be completed within 10 days of the 1st attempt.** Beyond these two opportunities to take the test, there are no additional options for retesting. **If you are currently enrolled in a Rutgers math class, you should not retest without consulting a school dean/advisor.**

Rutgers Business School and STEM-major students are strongly encouraged to retest if they do not place into Calculus I on the first attempt.

One of the advantages of the ALEKS placement testing system is that it identifies exactly where the individual student is having trouble and customizes the learning modules specifically to those areas, allowing them to review topics without taking an entire course, and then starting in the right course in the fall semester. Sometimes students have trouble with a particular section simply because some time has passed since they studied that topic. Other times, students may not do well on a particular section because courses taken elsewhere may vary in which topics they emphasize. The ALEKS modules help fill in any gaps. Being able to work through these modules and then take the test a second time is a great opportunity not just to improve your placement, but more importantly to build your math skills so that you are ready to begin your math studies at Rutgers with an appropriate course.

Topics on the test may include:

- Real numbers (fractions, integers, and percentages)
- Equations and inequalities (linear equations, linear inequalities, systems of linear equations, and quadratic equations),
- Linear and quadratic functions (graphs and functions, linear functions, and parabolas), exponents and polynomials (integer exponents, polynomial arithmetic, factoring, and polynomial equations), rational expressions (rational equations and rational functions)
- Radical expressions (higher roots and rational exponents)
- Exponentials and logarithms (function compositions and inverse functions, properties of logarithms, and logarithmic equations)
- Geometry and trigonometry (perimeter, area, and volume, coordinate geometry, trigonometric functions, and identities and equations).

On the test, you will see some, but not all, of the math you have learned previously. It is a placement test, not a preview of math courses at Rutgers (NB). It is designed to identify if you are prepared for a particular course. See below for sample questions.

Sample questions are listed below (answers appear after all questions below) – remember, the test is comprised of open-ended questions (not multiple choice). Not all topics will be presented.

1. $\frac{2}{9} + \frac{5}{6} \cdot \frac{1}{2} =$

2. *Solve for x:* $2(x - 4) = 4x + 5$

3. *Factor* $x^2 - 36$

4. *Solve for a:* $-\frac{1}{2}a - \frac{2}{3} = \frac{3}{5}$

5. *Factor* $3x^2 - 14x + 8$

6. Theater tickets to the Livingston Theater production cost \$18 for students and \$25 for non-students. If 320 tickets were sold, and the total sales of all of the tickets was \$6719, how many student tickets were sold?

7. *Express as a single fraction:* $1 + \frac{y-3x}{3x} + \frac{5x-2y}{4x}$

8. *Write in simplified form:* $\sqrt{32} - \sqrt{2}$

9. *Write in simplified form with positive exponents only:* $\frac{x^{-2}x^3}{x^4}$ *Assume x is a positive real number.*

10. *Solve the system:*
$$\begin{cases} y = -\frac{1}{2}x + 5 \\ 2x + y = 0 \end{cases}$$

11. Solve for x : $|3 - 2x| > 4$

12. Simplify: express your answer with positive exponents only: $x^{-3/2}x^3x^{1/3}$
Assume x is a positive real number.

13. Find the center and radius of the circle: $x^2 + y^2 - 6x + 8y = 8$

14. Sketch the graph of $y = -2(x + 1)^2 - 2$

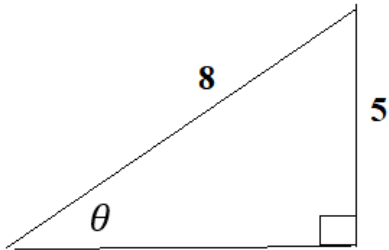
15. Put in simplest radical form: $\sqrt[3]{32x^7y^{18}}$

16. If $f(x) = 2x^2 - 3x + 5$ and $g(x) = \frac{2x}{5-x}$, then $f(g(3)) =$

17. Solve for x : $\log_x 64 = 3$

18. Solve for x exact using base 10: $9^{x-4} = 7^{-3x}$

19. For the right triangle below, find $\sec \theta$ exact (not decimal approximations):



20. Solve for x : $2\cos^2x = 1 + \sin x$ for x in the interval $[0, 2\pi)$. Express your answer in radians in terms of π .

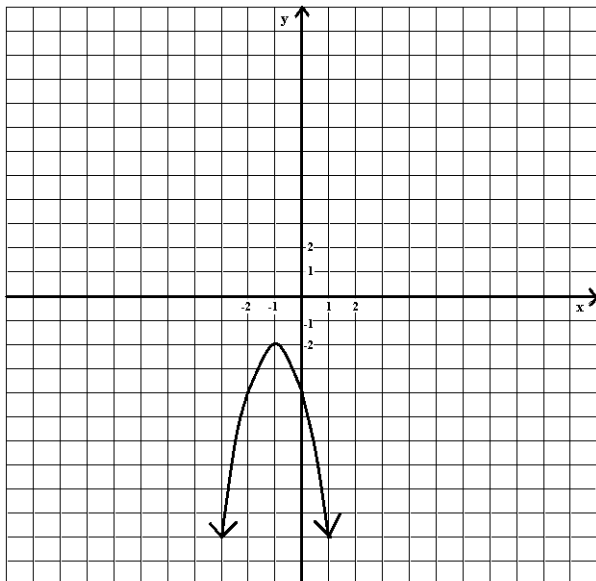
ANSWERS:

1) $\frac{23}{36}$, 2) $x = -\frac{13}{2}$, 3) $(x - 6)(x + 6)$, 4) $-\frac{38}{15}$, 5) $(3x - 2)(x - 4)$, 6) 183,

7) $\frac{15x-2y}{12x}$, 8) $3\sqrt{2}$, 9) $\frac{1}{x^3}$, 10) $x = -\frac{10}{3}$, $y = \frac{20}{3}$, 11) $x < -\frac{1}{2}$ or $x > \frac{7}{2}$,

12) $x^{11/6}$ 13) Center = $(3, -4)$, radius = $\sqrt{33}$,

14)



$$15) 2x^2y^6\sqrt[3]{4x}, 16) 14, 17) x = 4, 18) x = \frac{4 \log 9}{\log 9 + 3 \log 7},$$

$$19) \frac{8\sqrt{39}}{39}, 20) x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}$$

For additional practice, see final exam review exercises for each course:

- [Elementary Algebra](#)
- [Intermediate Algebra](#)
- [Precalculus](#)