

GUIDE TO THE
CUNY ASSESSMENT TESTS
IN MATHEMATICS

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Welcome

The faculty, staff and students of Baruch College are pleased that you are interested in joining our community. We are confident you will enjoy being a student at Baruch College.

The Office of Testing and Evaluation is a component of the Division for Enrollment Management and Strategic Academic Initiatives. Our mission is to provide quality assessment and evaluation support through the collection and processing of tests and faculty evaluation data. The Office of Testing and Evaluation's activities incorporate the following values: work meets the needs of the academic department or individual, work is timely, accurate and reliable, information is readily available to those who need it and secure from those who do not. Our staff is committed to the following ideals: professionalism, responsiveness, thoroughness, accessibility, friendliness and sensitivity to data confidentiality.

Contact Information

The Baruch College Office of Testing and Evaluation is located in room 5-220 of the William and Anita Newman Vertical Campus (55 Lexington Avenue, 5th Floor). Our office is open Monday – Friday from 9:00AM to 5:00PM, *(please note: that office hours are subject to change depending on activities calendar).*

Testing and Evaluation General Phone Number:	646-312-4305
Testing Website:	http://www.baruch.cuny.edu/testing
Student Course and Faculty Evaluation Website:	https://www.baruch.cuny.edu/evals
Departmental email address:	testing.evaluation@baruch.cuny.edu

Programs Administered by the Office of Testing and Evaluation

CUNY Skills Assessment:

The Skills Assessment program consists of the CUNY Assessment Tests in Reading, Writing and Mathematics. These tests are used to demonstrate an applicant's readiness for college-level academic work and to determine initial course placements for new and continuing students in mathematics, writing and reading. The Math Placement examination is used to determine appropriate course placement in math and math related courses.

Student Course and Faculty Evaluation:

The Office of Testing and Evaluation administers the Student Course and Faculty Evaluation program. This is an opportunity for students to rate their professors and the course(s) they are taking. They are also able to provide anonymous written feedback to their professors. Since the professors get the results after grades are posted; students are encouraged to be as constructive as possible in their assessments.

Conflict Examinations:

A conflict examination date is offered each semester for students who have more than two finals on one day, and who would like to have an alternative date for one of the exams, or have two finals at the same time. Details can be obtained at the Center for Academic Advisement.

CUNY Assessment Tests

Introduction

The Board of Trustees of the City University of New York requires that students must demonstrate their proficiency in basic learning skills. The purpose of the program is to ensure that students have the skills necessary to take advantage of the opportunities for learning provided by the college. Students who lack those skills may be directed to the appropriate services to assist them in preparing for success at Baruch College

The CUNY Assessment Program includes tests in three skills areas: reading, writing and mathematics. In each of these areas, the University has set standards defining readiness to do college work. Students, who do not meet these standards, may be referred to an Admissions Counselor to discuss their Admissions status.

Passing the CUNY Assessment Tests is one way to demonstrate the University's skills proficiency requirements.

CUNY Skills Requirements

Students are considered to have met the CUNY Skills Proficiency Requirements for Baruch College by documenting the following:

Reading and Writing:

Students can meet the Reading and Writing Skills Proficiency Requirement for Baruch College with one of the following:

- SAT I: Verbal score of 480 or higher (Pre March 2016)
- SAT I: Critical Reading score of 480 or higher (Pre March 2016)
- SAT I: Evidence-Based Reading and Writing section score of 480 (Effective March 2016)
- ACT English score of 20 or higher
- New York State English Language Arts Regents score of 75 or higher
- CUNY Assessment Test in Reading score of 70 or higher (pre-October 2016) AND CUNY Assessment Test in Writing score of 56 or higher
- CUNY Assessment Test in Reading Comprehension score of 55 (effective October 2016) or higher AND CUNY Assessment Test in Writing score of 56 or higher

Mathematics:

Students can meet the Mathematics Skills Proficiency Requirement for Baruch College with one of the following:

- SAT I: Math score of 500 or higher (Pre-March 2016)
- New SAT I Math Score of 530 or higher (Exam date March 2016 and later)
- ACT Math score of 21 or higher
- New York State Mathematics Regents Examinations:
 - Score of 70 or higher on the **Common Core NYS Regents** in Algebra 1 or Geometry
 - Score of 65 or higher on the **Common Core NYS Regents** in Algebra 2/Trigonometry
 - Score of 80 or higher on the **Non-Common Core NYS Regents** in Integrated Algebra or Geometry or Algebra 2/Trigonometry **AND** successful completion of the Algebra 2/Trigonometry or higher-level course.

- Score of 75 or higher in one of the following New York State Regents Examinations: Math A, Math B, Sequential Mathematics II or Sequential Mathematics III
- CUNY Assessment Test in Mathematics 2 (Algebra) score of 40 or higher (pre-October 2016)
- CUNY Assessment Test in Mathematics 5 (Elementary Algebra) score of 57 or higher (effective October 2016)

Additional Ways Transfer Students Can Demonstrate Proficiency for Baruch College

Transfer to Baruch from a Non-CUNY College

Reading and Writing:

Students with a 3 credit college-level English class, equivalent to Freshman Composition or a higher course which Freshman Composition is a pre-requisite, from an accredited college or university with a grade of “C” or better (“C-” is not acceptable) will be considered as proficient in Reading and Writing.

Mathematics:

Students with a 3 credit college-level Mathematics class, from an accredited college or university with a grade of “C” or better (“C-” is not acceptable) will be considered as proficient in Mathematics.

Transfer to Baruch from another CUNY College

All students who wish to transfer from a CUNY Associate program to a Bachelors program at Baruch College must meet the proficiency requirements in Reading, Writing and Mathematics to be admitted.

Note about proficiency standards

Proficiency standards and requirements are subject to change pursuant to CUNY Rules and Regulations. The most up to date information will be available on the Office of Testing and Evaluation website at <http://www.baruch.cuny.edu/testing>

Mathematics Placement Testing (CUNY Assessment Test in Mathematics 6)

All incoming students to Baruch College, regardless of their proficiency status, are required to take the CUNY Assessment Test in Mathematics 6 – Placement Test.

The result of the examination is used to determine appropriate placement into mathematics and mathematics-related courses. Even if you have an exemption or have already passed a mathematics skill assessment, you must still take this examination.

Frequently Asked Questions about the CUNY Assessment Tests

Who must take the CUNY Assessment Tests?

All incoming students to Baruch College must demonstrate proficiency in reading, writing and mathematics prior to registration. Some students may satisfy this requirement by achieving the necessary scores on New York State Regents, ACT or SAT examinations. All others are required to take the CUNY Assessment Tests. Students who are applying as a transfer student, may demonstrate proficiency based on prior course work.

Where and when are the tests given?

The CUNY Assessment Tests are administered in the William and Anita Newman Vertical Campus (55 Lexington Avenue at 24th Street); the exact room will be indicated on your test ticket.

The Office of Testing and Evaluation automatically invites all students who are accepted to Baruch College to take the appropriate CUNY Assessment and Placement Tests. Your testing appointment and information about your examinations will be sent to you with your acceptance packet.

What can students do to prepare for the tests?

The tests are intended to measure skills that students are expected to have learned in the course of their high school training. Students may want, in any case, to practice their reading, writing and mathematics skills beforehand. Descriptions of the tests and sample questions are included in this packet. Additional information is available at the Baruch College Office of Testing and Evaluation Website (<http://www.baruch.cuny.edu/testing>)

What should students bring with them to the tests?

Students should bring their picture I.D. (such as a driver's license), a pen (if taking the CUNY Assessment Test in Writing) and a #2 pencil. Students may not bring books, papers or computational devices (such as electronic calculators) of any kind to use during the test and must not give or receive help during the test. *Please note: the use of a paperback or hardcover dictionary is permitted only for the CUNY Assessment Test in Writing.*

Students who violate these rules will be disqualified from satisfying the CUNY standards at the testing session.

How do students get notified of their test results?

Incoming students are informed of their CUNY Assessment Test results and course placements through their Hobson's page or postal mail.

Continuing students receive their test results from their immersion instructors.

Due to privacy concerns, test scores will not be given out by phone.

How can test results be appealed? How can I retake the examination?

Students who come close to passing the CUNY Assessment Test in Reading (Reading Comprehension) or CUNY Assessment Test in Mathematics 5 (Elementary Algebra/Skills Certification) exams are eligible to retest once in the appropriate area(s). Students who score at least a 45 on the Reading Comprehension test or at least a 50 on the Math 5 - Elementary Algebra test, are eligible to retest one time. Students must wait a minimum of 10 business days before they can retest. Scores achieved on the retest will be used to determine college readiness. It is strongly advised that students review the Test Preparation Resources prior to retesting.

Students may file a Request for Review of the CUNY Assessment Test in Writing in person at the Office of Testing and Evaluation within six weeks of their test date. A member of the Office of Testing and Evaluation's staff will verify if your test results meet the University's guidelines for possible rescoring.

Students with Special Needs

Students with special needs who require modified testing accommodations should contact the Office of Services for Students with Disabilities. Their telephone number is 646-312-4590. Accommodations based on disabilities will be granted to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.

CUNY Assessment Test in Mathematics

Description of Examination

The CUNY Assessment Test in Mathematics is an untimed, multiple-choice, computer based test composed of four sections: Numbers and quantities; Problem solving; Algebraic expressions; Algebraic operations; Solutions of equations and inequalities; Coordinate geometry; Functions; Trigonometry; Applications and other topics.

The **CUNY Assessment Test in Mathematics 5 (Elementary Algebra)** covers Numbers and quantities; Algebraic expressions and Problem Solving. **The CUNY Assessment Test in Mathematics 6 (College Math)** covers Algebraic operations; Solutions of equations and inequalities; Coordinate geometry; Functions; Trigonometry; Applications and other topics. The CUNY Assessment Test in Mathematics 5 (Elementary Algebra) is used to determine the University and Baruch College's skills certification requirement. The CUNY Assessment Test in Mathematics 6 (College Math) is used to determine placement into Mathematics and Mathematics-related courses.

Reference Materials

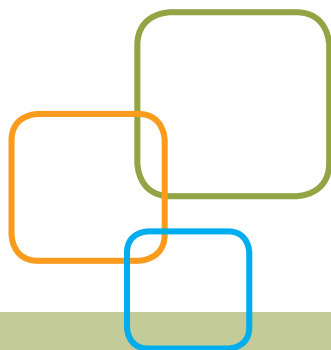
Students may not bring calculators or any other reference materials to this examination. Students will be provided with a computer based calculator to be used during the examination.

Passing Scores

The passing score of the CUNY Assessment Test in Mathematics 5 – Elementary Algebra/Skills Certification is a scaled score of 57.

There is no passing/failing score for the CUNY Assessment Test in Mathematics 6 – College Math/Placement.

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ACCUPLACER® Sample Questions for Students

Mathematics 5 - Elementary Algebra
Skills Certification

Elementary Algebra

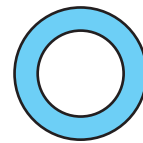
There are 12 questions administered on the Elementary Algebra test, divided into the following content areas:

- Numbers and quantities. Topics include integers and rational numbers, computation with integers and negative rationals, absolute value, and ordering.
- Algebraic expressions. Topics include evaluation of simple formulas and expressions, adding and subtracting monomials and polynomials, multiplying and dividing monomials and polynomials, evaluating positive rational roots and exponents, simplifying algebraic fractions, and factoring.
- Problem solving. Topics include translating written phrases into algebraic expressions, solving linear equations and inequalities, quadratic equations (by factoring), and verbal problems presented in an algebraic context.

Elementary Algebra Sample Questions

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. If A represents the number of apples purchased at 15 cents each, and B represents the number of bananas purchased at 10 cents each, which of the following represents the total value of the purchases in cents?
 - A. $A + B$
 - B. $25(A + B)$
 - C. $10A + 15B$
 - D. $15A + 10B$
2. $\sqrt{2} \times \sqrt{15} = ?$
 - A. $\sqrt{17}$
 - B. $\sqrt{30}$
 - C. 17
 - D. 30
3. What is the value of the expression $2x^2 + 3xy - 4y^2$ when $x = 2$ and $y = -4$?
 - A. -80
 - B. -32
 - C. 32
 - D. 80
4. In the figure below, both circles have the same center, and the radius of the larger circle is R . If the radius of the smaller circle is 3 units less than R , which of the following represents the area of the shaded region?



- A. πR^2
 - B. $\pi(R - 3)^2$
 - C. $\pi R^2 - \pi \times 3^2$
 - D. $\pi R^2 - \pi(R - 3)^2$
5. $(3x - 2y)^2 =$
 - A. $9x^2 - 4y^2$
 - B. $9x^2 + 4y^2$
 - C. $9x^2 - 6xy + 4y^2$
 - D. $9x^2 - 12xy + 4y^2$

6. If $x > 2$, then $\frac{x^2 - x - 6}{x^2 - 4} =$

- A. $\frac{x-3}{2}$
- B. $\frac{x-3}{x-2}$
- C. $\frac{x-3}{x+2}$
- D. $\frac{3}{2}$

7. $\frac{4 - (-6)}{-5} =$

- A. -2
- B. $-\frac{2}{5}$
- C. $\frac{2}{5}$
- D. 2

8. If $2x - 3(x + 4) = -5$, then $x =$

- A. -17
- B. -7
- C. 7
- D. 17

9. $-3(5 - 6) - 4(2 - 3) =$

- A. -7
- B. -1
- C. 1
- D. 7

10. $20 - \frac{4}{5}x \geq 16$

Which of the following inequalities is equivalent to the inequality shown above?

- A. $x \leq 5$
- B. $x \geq 5$
- C. $x \leq \frac{65}{2}$
- D. $x \geq \frac{65}{2}$

11. Which of the following lists of numbers is ordered from least to greatest?

- A. $-\frac{1}{3}, -\frac{3}{5}, \frac{2}{3}, \frac{3}{5}$
- B. $-\frac{3}{5}, -\frac{1}{3}, \frac{3}{5}, \frac{2}{3}$
- C. $-\frac{1}{3}, -\frac{3}{5}, \frac{3}{5}, \frac{2}{3}$
- D. $-\frac{3}{5}, -\frac{1}{3}, \frac{2}{3}, \frac{3}{5}$

12. If $5t + 2 = 6$, then $t =$

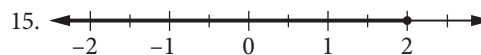
- A. 8
- B. $\frac{5}{4}$
- C. $\frac{4}{5}$
- D. -8

13. For which of the following equations are $x = 5$ and $x = -5$ both solutions?

- A. $x^2 + 25 = 0$
- B. $x^2 - 25 = 0$
- C. $x^2 + 10x - 25 = 0$
- D. $x^2 - 5x - 25 = 0$

14. If $x \neq 0$, then $\frac{u}{x} + \frac{5u}{x} - \frac{u}{5x} =$

- A. $\frac{7x}{5u}$
- B. $\frac{5u}{7x}$
- C. $\frac{29u}{5x}$
- D. $\frac{31u}{5x}$



The solution set of which of the following inequalities is graphed on the number line above?

- A. $2x - 4 \geq -3$
- B. $2x + 5 \leq 6$
- C. $3x - 1 \leq 5$
- D. $4x - 1 \geq 7$

16. $2x + 6y = 5$
 $x + 3y = 2$

How many solutions (x, y) are there to the system of equations above?

- A. None
- B. One
- C. Two
- D. More than two

17. Which of the following is a factor of both $x^2 - x - 6$ and $x^2 - 5x + 6$?

- A. $x - 3$
- B. $x - 2$
- C. $x + 2$
- D. $x + 3$

18. $\frac{10x^6 + 8x^4}{2x^2} =$

- A. $9x^{12}$
- B. $14x^4$
- C. $5x^4 + 4x^2$
- D. $5x^3 + 2x^2$

19. A rectangular yard has area 96 square feet. If the width of the yard is 4 feet less than the length, what is the perimeter, in feet, of the yard?

- A. 40
- B. 44
- C. 48
- D. 52

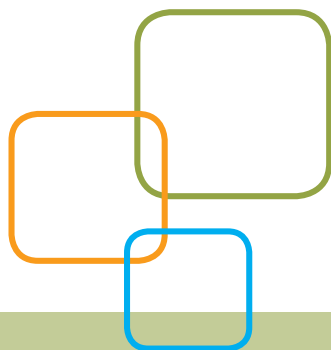
20. On Monday, it took Helen 3 hours to do a page of science homework exercises. The next day she did the same number of exercises in 2 hours. If her average rate on Monday was p exercises per hour, what was her average rate the next day, in terms of p ?

- A. $2(p + 1)$ exercises per hour
- B. $3(p - 1)$ exercises per hour
- C. $\frac{2}{3}p$ exercises per hour
- D. $\frac{3}{2}p$ exercises per hour

Answer Key

ELEMENTARY ALGEBRA	
QUESTION NUMBER	CORRECT ANSWER
1	D
2	B
3	A
4	D
5	D
6	B
7	A
8	B
9	D
10	A
11	B
12	C
13	B
14	C
15	C
16	A
17	A
18	C
19	A
20	D

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ACCUPLACER[®] Sample Questions for Students

**Mathematics 6 - College Math
Placement**

College-Level Mathematics

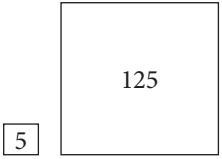
There are 20 questions administered on the College-Level Mathematics test, divided into the following content areas:

- Algebraic operations. Topics include simplifying rational algebraic expressions, factoring and expanding polynomials, and manipulating roots and exponents.
- Solutions of equations and inequalities. Topics include solving linear and quadratic equations and inequalities, systems of equations and other algebraic equations.
- Coordinate geometry. Topics include plane geometry, the coordinate plane, straight lines, conics, sets of points in the plane, and algebraic function graphs.
- Functions. Topics include polynomial, algebraic, exponential, and logarithmic functions.
- Trigonometry. Topics include trigonometric functions.
- Applications and other topics. Topics include complex numbers, series and sequences, determinants, permutations and combinations, factorials, and word problems.

College-Level Mathematics Sample Questions

For each of the questions below, choose the best answer from the five choices given. You may use the paper you received as scratch paper.

1. $2^{\frac{5}{2}} - 2^{\frac{3}{2}} =$
- A. $2^{\frac{1}{2}}$
 - B. 2
 - C. $2^{\frac{3}{2}}$
 - D. $2^{\frac{5}{3}}$
 - E. 2^2

2. If $a \neq b$ and $\frac{1}{x} + \frac{1}{a} = \frac{1}{b}$, then $x =$
- $\frac{1}{b} - \frac{1}{a}$
 - $b - a$
 - $\frac{1}{ab}$
 - $\frac{a-b}{ab}$
 - $\frac{ab}{a-b}$
3. If $3x^2 - 2x + 7 = 0$, then $(x - \frac{1}{3})^2 =$
- $\frac{20}{9}$
 - $\frac{7}{9}$
 - $-\frac{7}{9}$
 - $-\frac{8}{9}$
 - $-\frac{20}{9}$
4. The graph of which of the following equations is a straight line parallel to the graph of $y = 2x$?
- $4x - y = 4$
 - $2x - 2y = 2$
 - $2x - y = 4$
 - $2x + y = 2$
 - $x - 2y = 4$
5. An equation of the line that contains the origin and the point $(1, 2)$ is
- $y = 2x$
 - $2y = x$
 - $y = x - 1$
 - $y = 2x + 1$
 - $\frac{y}{2} = x - 1$
6. An apartment building contains 12 units consisting of one- and two-bedroom apartments that rent for \$360 and \$450 per month, respectively. When all units are rented, the total monthly rental is \$4,950. What is the number of two-bedroom apartments?
- 3
 - 4
 - 5
 - 6
 - 7
7. If the two square regions in the figures below have the respective areas indicated in square yards, how many yards of fencing are needed to enclose the two regions? (Assume the regions are fenced separately.)
- 
- The diagram shows two squares. The first square on the left has a side length of 5, indicated by a small box with the number 5 next to it. The second square on the right has an area of 125, indicated by the number 125 inside the square.
- $4\sqrt{130}$
 - $20\sqrt{10}$
 - $24\sqrt{5}$
 - 100
 - $104\sqrt{5}$
8. If $\log_{10} x = 3$, then $x =$
- 3^{10}
 - 1,000
 - 30
 - $\frac{10}{3}$
 - $\frac{3}{10}$
9. If $f(x) = 2x + 1$ and $g(x) = \frac{x-1}{2}$, then $f(g(x)) =$
- x
 - $\frac{x-1}{4x+2}$
 - $\frac{4x+2}{x-1}$
 - $\frac{5x+1}{2}$
 - $\frac{(2x+1)(x-1)}{2}$
10. If θ is an acute angle and $\sin \theta = \frac{1}{2}$, then $\cos \theta =$
- 1
 - 0
 - $\frac{1}{2}$
 - $\frac{\sqrt{3}}{2}$
 - 2
11. $5y(2y - 3) + (2y - 3) =$
- $(5y + 1)(2y + 3)$
 - $(5y + 1)(2y - 3)$
 - $(5y - 1)(2y + 3)$
 - $(5y - 1)(2y - 3)$
 - $10y(2y - 3)$

12. For what real numbers x is the value of $x^2 - 6x + 9$ negative?

- A. $-3 < x < 3$
- B. $x < -3$ or $x > 3$
- C. $x = -3$ or $x = 3$
- D. $0 < x < 6$
- E. For no real numbers x

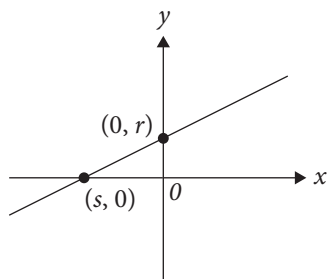
13. A root of $x^2 - 5x - 1 = 0$ is

- A. $\frac{1 - \sqrt{29}}{2}$
- B. $\frac{5 - \sqrt{17}}{2}$
- C. $\frac{1 + \sqrt{29}}{2}$
- D. $\frac{5 + \sqrt{17}}{2}$
- E. $\frac{5 + \sqrt{29}}{2}$

14. In the xy -plane, the graph of $y = x^2$ and the circle with center $(0, 1)$ and radius 3 have how many points of intersection?

- A. None
- B. One
- C. Two
- D. Three
- E. More than three

15.



If an equation of the linear function in the figure above is $y = mx + b$, then $m =$

- A. $-\frac{r}{s}$
- B. $\frac{r}{s}$
- C. rs
- D. r
- E. $-s$

16. One ordering of the letters $T, U, V,$ and W from left to right is $UTVW$. What is the total number of orderings of these letters from left to right, including $UTVW$?

- A. 8
- B. 12
- C. 16
- D. 20
- E. 24

17. If $f(x) = \frac{3x-1}{2}$ and f^{-1} is the inverse of f , what is the value of $f^{-1}(3)$?

- A. $\frac{1}{3}$
- B. $\frac{2}{3}$
- C. 1
- D. 2
- E. $\frac{7}{3}$

18. The sequence $\{a_n\}$ is defined by $a_0 = 1$ and

$a_{n+1} = 2a_n + 2$ for $n = 0, 1, 2, \dots$. What is the value of a_3 ?

- A. 8
- B. 10
- C. 16
- D. 20
- E. 22

19. From 5 employees at a company, a group of 3 employees will be chosen to work on a project. How many different groups of 3 employees can be chosen?

- A. 3
- B. 5
- C. 6
- D. 10
- E. 15

20. If $f(x) = \left(\frac{1}{3}\right)^x$ and $a < b$, which of the following must be true?

- A. $f(a) + f(b) = 3$
- B. $f(a) + \frac{1}{3} = f(b)$
- C. $f(a) = f(b)$
- D. $f(a) < f(b)$
- E. $f(a) > f(b)$

Answer Key

COLLEGE-LEVEL MATHEMATICS	
QUESTION NUMBER	CORRECT ANSWER
1	C
2	E
3	E
4	C
5	A
6	E
7	C
8	B
9	A
10	D
11	B
12	E
13	E
14	C
15	A
16	E
17	E
18	E
19	D
20	E