Description of the Examination
The College Algebra examination covers material that is usually taught in a one-semester college course in algebra. Nearly half of the test is made up of routine problems requiring basic algebraic skills; the remainder involves solving nonroutine problems in which candidates must demonstrate their understanding of concepts. The test includes questions on basic algebraic operations; linear and quadratic equations, inequalities, and graphs; algebraic, exponential and logarithmic functions; and miscellaneous other topics. It is assumed that candidates are familiar with currently taught algebraic vocabulary, symbols and notation. The test places little emphasis on arithmetic calculations. However, an online scientific calculator (nongraphing) will be available during the examination.

The examination contains approximately 60 questions to be answered in 90 minutes. Some of these are pretest questions that will not be scored.

Knowledge and Skills Required
Questions on the College Algebra examination require candidates to demonstrate the following abilities in the approximate proportions indicated.

- Solving routine, straightforward problems (about 50 percent of the examination)
- Solving nonroutine problems requiring an understanding of concepts and the application of skills and concepts (about 50 percent of the examination)

The subject matter of the College Algebra examination is drawn from the following topics. The percentages next to the main topics indicate the approximate percentage of exam questions on that topic.

25% Algebraic Operations
Factoring and expanding polynomials
Operations with algebraic expressions
Operations with exponents
Properties of logarithms

25% Equations and Inequalities
Linear equations and inequalities
Quadratic equations and inequalities

Absolute value equations and inequalities
Systems of equations and inequalities
Exponential and logarithmic equations

30% Functions and Their Properties*
Definition and interpretation
Representation/modeling (graphical, numerical, symbolic and verbal representations of functions)
Domain and range
Algebra of functions
Graphs and their properties (including intercepts, symmetry and transformations)
Inverse functions

20% Number Systems and Operations
Real numbers
Complex numbers
Sequences and series
Factorials and Binomial Theorem
Determinants of 2-by-2 matrices

*Each test may contain a variety of functions, including linear, polynomial (degree ≤ 5), rational, absolute value, power, exponential, logarithmic and piecewise defined.

Study Resources
Most textbooks used in college-level algebra courses cover the topics in the outline above, but the approaches to certain topics and the emphases given to them may differ. To prepare for the College Algebra exam, it is advisable to study one or more college textbooks, which can be found in most college bookstores.

A recent survey conducted by CLEP® found that the following textbooks are among those used by college faculty who teach the equivalent course. Most of these have companion websites with practice test questions and other study resources. HINT: When selecting a textbook, check the table of contents against the Knowledge and Skills Required for this test.
Sample Test Questions

The following sample questions do not appear on an actual CLEP examination. They are intended to give potential test-takers an indication of the format and difficulty level of the examination and to provide content for practice and review. For more sample questions and information about the test, see the CLEP Official Study Guide.

1. Which of the following is equal to $a^{bc}$ for all values of $a$, $b$, and $c$?
   (A) $ab^c$
   (B) $a^{(b + c)}$
   (C) $a^b c^c$
   (D) $(a^b)^c$
   (E) $a^b c$

2. If $a > 0$ and $b > 0$, which of the following could be an equation of the line graphed in the $xy$-plane above?
   (A) $y = -ax - b$
   (B) $y = ax - b$
   (C) $y = ax + b$
   (D) $y = -ax + b$
   (E) $y = abx$
3. The functions $f$ and $g$ are defined above. What is the value of $f(g(-3))$?
(A) $-6$
(B) $-3$
(C) $0$
(D) $3$
(E) $9$

4. In the $xy$-plane, the graph of the function $f(x) = x^2 + bx + 4$ does not intersect the $x$-axis. Which of the following must be true about $b$?
(A) $-8 \leq b < -4$
(B) $b = -4$
(C) $-4 < b < 4$
(D) $b = 4$
(E) $4 < b \leq 8$

5. If $x = 2$ is a root of the equation $3x^3 - x^2 - 2t + 4 = 0$, what is the value of $t$?

6. Which of the following products is a real number?
(A) $(1 + i)(1 - i)$
(B) $(1 + i)(1 + i)$
(C) $(-1 - i)(-1 - i)$
(D) $(-1 + i)(-1 + i)$
(E) $(-1 + i)(1 - i)$

Credit Recommendations
The American Council on Education has recommended that colleges grant 3 credits for a score of 50, which is equivalent to a course grade of C, on the CLEP College Algebra exam. Each college, however, is responsible for setting its own policy. For candidates with satisfactory scores on the CLEP College Algebra examination, colleges may grant credit toward fulfillment of a distribution requirement, or for a particular course that matches the exam in content. Check with your school to find out the score it requires for granting credit, the number of credit hours granted and the course that can be bypassed with a passing score.

Answers to Sample Questions:
(1) D; (2) B; (3) E; (4) C; (5) 12; (6) A.