

## EXAM INFORMATION

This exam was developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. This exam covers topics such as complex numbers, algebraic operations, equations and inequalities, and properties of functions and their graphs.

The exam contains 100 questions to be answered in 2 hours. The use of a non-programmable calculator is permitted in this exam.

**Form Codes:** SQ424. SR424. SY424. SZ424

## CREDIT RECOMMENDATIONS

The American Council on Education's College Credit Recommendation Service (ACE CREDIT) has evaluated the DSST test development process and content of this exam. It has made the following recommendations:

**Area or Course Equivalent:** Fundamentals of College Algebra

**Level:** Lower-level baccalaureate

**Amount of Credit:** 3 Semester Hours

**Minimum Score:** 400

**Source:** [www.acenet.edu](http://www.acenet.edu)

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## EXAM CONTENT OUTLINE

The following is an outline of the content areas covered in the examination. The approximate percentage of the examination devoted to each content area is also noted.

- I. **Fundamental Algebraic Operations – 20%**
  - a. Operations with algebraic expressions
  - b. Operations with polynomials (including factoring and expanding polynomials)
  - c. Rational expressions
  - d. Operations with positive, negative and fractional exponents
  
- II. **Complex Numbers – 4%**
  - a. Conjugate
  - b. Basic Operations
  
- III. **Equations and Inequalities – 44%**
  - a. Linear equations and inequalities
  - b. Quadratic equations and inequalities (including quadratic forms and solving quadratic inequalities)
  - c. Absolute value equations and inequalities
  - d. Systems of linear equations and inequalities
  - e. Exponential and logarithmic equations
  - f. Equations involving radicals
  
- IV. **Properties of Functions and their Graphs – 32%**
  - a. Coordinate systems
  - b. Domain and range
  - c. Operations of functions
  - d. Inverse functions
  - e. Linear functions

- f. Quadratic functions
  - g. Polynomial functions
  - h. Rational functions
  - i. Exponential and logarithmic functions
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## REFERENCES

Below is a list of reference publications that were either used as a reference to create the exam, or were used as textbooks in college courses of the same or similar title at the time the test was developed. You may reference either the current edition of these titles or textbooks currently used at a local college or university for the same class title. It is recommended that you reference more than one textbook on the topics outlined in this fact sheet.

You should begin by checking textbook content against the content outline provided before selecting textbooks that cover the test content from which to study.

Sources for study material are suggested but not limited to the following:

1. Lial, Margaret L; Hornsby, John; McGinnis, Terry (2014). *Intermediate Algebra*. Pearson, 11th Ed.
  2. Hornsby, John; Lial, Margaret L; Rockswold, Gary K. (2015) *Graphical Approach to College Algebra*, 6<sup>th</sup> Edition
  3. Steward, James; Redlin, Lothar; Watson, Saleem. (2016) *College Algebra*, 7<sup>th</sup> Edition, Cengage Learning
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## SAMPLE QUESTIONS

All test questions are in a multiple-choice format, with one correct answer and three incorrect options. The following are samples of the types of questions that may appear on the exam.

1. If  $x^2 \neq 1$ , then

$$\frac{1}{x^2 - 1} + \frac{1}{x + 1} =$$

a.  $\frac{2}{x^2 + x}$

b.  $\frac{x + 2}{x^2 - 1}$

c.  $\frac{x}{x^2 - 1}$

d.  $\frac{1}{x^2} + \frac{1}{x}$

2. Which of the following is a solution of the equation  $x^2 + 3x - 2 = 0$ ?

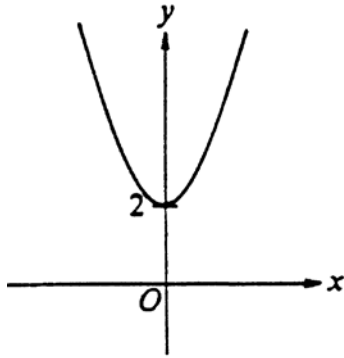
a. 2

b.  $3 - \sqrt{17}$

c.  $\frac{2}{-3 + \sqrt{17}}$

d.  $-3 + \sqrt{5}$

3. An experimental formula for the number of hours of sleep a child needs is  $S = 13.5 - (y/3)$ , where  $S$  is the number of hours of sleep needed and  $y$  is the age of the child in years. According to this formula, with each passing year, a child needs
- 1/3 hour less sleep
  - 1/3 hour more sleep
  - 1 hour less sleep
  - 1 hour more sleep
4.  $\sqrt{48a^3b^4} =$
- $4ab^2\sqrt{3a}$
  - $8ab^2\sqrt{3a}$
  - $24ab^2\sqrt{a}$
  - $16a^2b^4\sqrt{3}$
5. Which of the following could be the equation of the graph below?



- $y = 2x^2$
- $y = -x^2 + 2$
- $y = x^2 + 2$
- $x = y^2 + 2$

Answers to sample questions:  
1-C; 2-C; 3-A; 4-A; 5-C