

DSST® BUSINESS MATHEMATICS

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. The exam covers topics such as integers, fractions, and decimals; round numbers; ratios; averages; business graphs; simple interest, compound interest and annuities; net pay and deductions; discounts and markups; depreciation and net worth; corporate securities; distribution of ownership; and stock and asset turnover.

The exam contains 100 questions to be answered in 2 hours. The use of a nonprogrammable calculator is permitted during the test.

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. Number Sense – 5%

Percentages, fractions and decimals

II. Algebraic Concepts – 15%

- Linear equations and inequalities
- Simultaneous linear equations
- Quadratic equations and functions
- Extrapolation and interpolation
- Graphing equations and evaluating functions

III. Statistics – 16%

- Central tendency
- Dispersion
- Statistical significance
- Expected value
- Probability distributions
- Weighted averages
- Percentiles

IV. Business Applications – 50%

- Index numbers
- Interest
- Depreciation/salvage value
- Discounts and credit terms
- Installment purchases
- Markup/markdown
- Taxes
- Cost calculations (e.g., gross and net pay; fixed and variable costs)
- Break-even analysis (algebraically and graphically)
- Financial ratio calculation and analysis
- Promissory notes and other loans

- Interpretation of graphical representations (and misuse of data)
- Unit conversions
- Investment performance measures (e.g., p/e ratios, yield factors, rates of return)
- Cost minimization/value optimization

V. Financial Mathematics – 14%

- Annuities and present value
- Amortization and future value
- Annual percentage rate
- Effective annual rate

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:

- Finite Mathematics with Applications*, 9th Edition, 2007, Addison-Wesley, ISBN: 978-0321386724, 75 Arlington Street, Suite 300, Boston, MA 02116 (www.awbc.com).
- Practical Business Math Procedures*, 9th Edition, 2008, McGraw-Hill, ISBN: 978-0-07-313767-4, Two Penn Plaza, New York, NY 10121 (www.books.mcgraw-hill.com).

SAMPLE QUESTIONS

All test questions are in a multiple-choice format, with one correct answer and three incorrect options. These are samples of the types of questions that may appear on the exam. Other sample questions can be found in the form of practice exams by visiting our website at www.getcollegedcredit.com/testprep.

Certain words, concepts, and symbols on this test are defined as follows:

Average = arithmetic mean

Correlation = linear correlation

SD = standard deviation
$$\sqrt{\frac{\sum x^2}{n}}$$

Rms = root-mean-square = $\sqrt{\frac{\sum x^2}{n}}$
 Area of a rectangle with adjacent edges a and $b = a.b$

Area of a triangle with base b and corresponding altitude $h = \frac{1}{2} b.h$

1. If graphed over the last 100 years, which of the following graphs would show a curve that is decreasing?
 - a. Percentage of adult Americans who smoke
 - b. Population of the United States
 - c. Amount of U.S. national debt
 - d. Number of Americans who drive cars

2. During one month, Jane works 42 hours during the first week and 40 hours during the second week. Her regular pay is \$7.50 per hour for 35 hours per week, and she is paid time and one half for each hour worked in excess of 35 hours. Her FICA deduction is 6.25 percent and her federal income tax is deducted at a rate of 25 percent. If she pays no other taxes, what is her net pay for the first two weeks of the month?
 - a. \$422.81
 - b. \$453.75
 - c. \$461.25
 - d. \$576.56

3. In Year 1, a company used 120,000 gallons of fuel oil at a cost of \$0.75 per gallon. In Year 2, the company used 150,000 gallons at a cost of \$0.80 per gallon. By what percentage did the company's total fuel cost increase Year 2 over Year 1?
 - a. -25.0%
 - b. 6.7%
 - c. 25.0%
 - d. 33.3%

4. Given five numbers, which of the statements below is always true?
 - a. The arithmetic mean cannot be smaller than the largest one of the numbers.
 - b. The arithmetic mean cannot be smaller than the smallest two of the numbers.
 - c. The arithmetic mean cannot be smaller than the median.
 - d. The arithmetic mean cannot be smaller than three of the numbers.

5. A jewelry store wants to sell five diamonds for \$1,200 per carat. If the weights of the diamonds are $\frac{1}{4}$, $\frac{5}{6}$, $\frac{3}{7}$, and $\frac{1}{2}$ carats, what is their total value?
 - a. \$2,400

- b. \$2,750
- c. \$2,800
- d. \$2,814

6. What is the current yield of a 3 percent bond with a face (par) value of \$1,000 if it is quoted at a deep discount price of 6 $\frac{1}{2}$ percent?
 - a. 3.5%
 - b. 9.5%
 - c. 19.5%
 - d. 46.2%

7. A company has five employees and reports its salary averages as a median. If the salary range is \$29,000 and the average salary is \$20,000, which of the following salary listings could represent the company?
 - a. \$12,000; \$14,000; \$20,000; \$25,000; \$29,000
 - b. \$15,000; \$19,000; \$20,000; \$23,000; \$29,000
 - c. \$18,000; \$19,000; \$20,000; \$29,000; \$47,000
 - d. \$20,000; \$20,000; \$20,000; \$23,000; \$29,000

8. A new car is going to cost the buyer \$12,345.67. The buyer intends to make a down payment and finance the balance with equal payments of \$400 at the end of each of the next 30 months. If the loan interest is 12 percent, compounded monthly, what is the amount of the down payment?
 - a. \$256
 - b. \$1,568
 - c. \$2,022
 - d. \$2,680

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	Business Mathematics
Level	Lower-level baccalaureate
Amount of Credit	Three (3) semester hours
Minimum Score	400
Source	American Council on Education – College Credit Recommendation Service

Answers to sample questions: 1-A; 2-B; 3-D; 4-B; 5-D; 6-D; 7-C; 8-C.