Fact Sheet 2009

BUSINESS MATHEMATICS

TEST INFORMATION

This test was developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. The school may choose to award college credit to the student based on the achievement of a passing score. The ultimate passing score for each examination is determined by the school. The school is provided with a recommended passing score established by a national committee of college faculty who teach this course. The DSST program is approved by the American Council on Education (ACE), and the ACE provides both a recommended passing score and a recommended number of credits that could be awarded to successful students. Some schools set their own standards for awarding credit and may require a higher score than the ACE recommendation. Students should obtain this information from the institution from which they expect to receive credit.

The use of nonprogrammable calculators is permitted during the test. Scratch paper for computations will be provided. A calculator function is available during computer-based exams.

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.

Business Mathematics Exam Content Outline

I. Number Sense -- 5%
Percentages, fractions and decimals

II. Algebraic Concepts – 15%
- A. Linear equations and inequalities
- B. Simultaneous linear equations
- C. Quadratic equations and functions
- D. Extrapolation and interpolation
- E. Graphing equations and evaluating functions

III. Statistics – 16%
- A. Central tendency
- B. Dispersion
- C. Statistical significance
- D. Expected value
- E. Probability distributions
- F. Weighted averages
- G. Percentiles

IV. Business Applications – 50%
- A. Index numbers
- B. Interest
- C. Depreciation/salvage value
- D. Discounts and credit terms
- E. Installment purchases
- F. Markup/ markdown
- G. Taxes
- H. Cost calculations (e.g., gross and net pay; fixed and variable costs)
- I. Break-even analysis (algebraically and graphically).
- J. Financial ratio calculation and analysis
- K. Promissory notes and other loans
- L. Interpretation of graphical representations (and misuse of data)
- M. Unit conversions
- N. Investment performance measures (e.g., p/e ratios, yield factors, rates of return)
- O. Cost minimization/value optimization

V. Financial Mathematics – 14%
- A. Annuities and present value
- B. Amortization and future value
- C. Annual percentage rate
- D. Effective annual rate

REFERENCES

The following references were used to create exam questions and may be useful as study materials. You are not allowed to use these references in the testing center.

1. *Finite Mathematics with Applications*, 9th Edition, 2007, Addison-Wesley, 75 Arlington Street, Suite 300, Boston, MA 02116 (www.aw-bc.com).
2. *Practical Business Math Procedures*, 9th Edition, 2008, McGraw-Hill, Two Penn Plaza, New York, NY 10121 W.W. Norton & Company, (www.books.mcgraw-hill.com).

SAMPLE QUESTIONS

All test questions are in a multiple-choice format, with one correct answer and three incorrect options. You may want to review these samples for the type of questions that may appear on the exam.

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

average = arithmetic mean
correlation = linear correlation
SD = standard deviation
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 = ½ $b.h$

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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 in 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 1/4, 5/6, 3/7, 1/3, and 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 6½ 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

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

CREDIT RECOMMENDATIONS

The Center for Adult Learning and Educational Credentials of the American Council on Education (ACE) has reviewed and evaluated the DSST test development process and has made the following recommendations:

Area or Course Equivalent	Business Math
Level	Lower level baccalaureate
Amount of Credit	Three (3) semester hours
Source	ACE Commission on Education Credit and Credentials

It is advisable that schools develop a consistent policy about awarding credit based on scores from this test and that the policy be reviewed periodically. Prometric will be happy to help schools in this effort.

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