

Test #1 will be given on Monday, February 19. It will include material from sections 1.3, 1.4, 3.1, 3.2, 3.3 and 3.4. **BE SURE TO BRING YOUR CALCULATOR TO THE TEST.** However, using the statistical features of your calculator will not be on the test.

### **IMPORTANT REMINDERS**

**MAKEUP POLICY:** If you know in advance that you have to miss a quiz or test, you can make arrangements with me to take the quiz or test **before** it is given in class. Otherwise, no makeup quizzes will be given. If you miss an hour test, it may be made up only if you

- Do not have more than one unexcused absence during the time period covered on the test.
- Contact me on or before the scheduled test date.
- Can prove that you have a legitimate excuse.
- Show me all homework on the relevant material.

**If you do not meet these conditions, you will not be permitted to take a makeup test and the percentage equivalent of your final exam grade will be substituted for the grade of the missed test. No student will be permitted to take more than one makeup test.**

**ACADEMIC HONESTY:** All students are expected to do their own work on quizzes and tests. Students are expected to observe the following rules during any test or quiz.

- Students may not use or even hold a cell phone or any other electronic device.
- Students may not speak to or share materials with other students.
- Students should have all materials ready at the beginning of the quiz or test.
- Students should remain in the room during the entire test or quiz.

Appropriate penalties will be imposed for breaches of academic honesty.

**If you have documentation showing that you require extended time for tests, you must discuss this with me at least two days before the scheduled test date.**

For this test, you should be able to

- Find linear functions based on information relating price and demand, cost and number of items produced, or other quantities.
- Find the coordinates of the vertex of a quadratic function *algebraically*.
- Find the revenue function if you know the price-demand function for the item.
- Find the profit function if you know the revenue and cost functions for the item.
- Determine the break-even points for an item.
- Determine the outputs for which the company has a loss or a profit.
- Determine the output needed for maximum profit.
- Determine the amount of the maximum profit.
- Recognize when a problem involves *simple interest* and be able to use one of the two simple interest formulas, that is,  $I = PRT$  and  $A = P(1 + RT)$ , to find interest, amount, principal or rate.
- Given the annual rate and the compounding period, find the interest rate per interest period.

- Recognize when a problem involves **compound interest**, and use the compound interest formula  $A = P(1 + i)^n$  to find A or P.
- Use the TVM Solver to solve problems involving compound interest, annuities, sinking funds, and amortized loans. You may be asked to find present value, future value, the annual nominal compounding rate, the time period of the investment or loan, or the effective rate for a stated compound interest rate.
- Fill out an amortization schedule for a loan being paid back in equal periodic payments.

### SUGGESTED REVIEW EXERCISES

**Chapter 1 Review** (p. 72)/ 33 ABC, 34 ABC, 46, 47 Note: For #46, do all graphing on your calculator and determine when  $R = C$ ,  $R < C$  and  $R > C$  graphically.

Use the TVM Solver (not the FV and PV formulas) when appropriate.

**Chapter 3 Review** (p. 175)/ 1 - 10, 13, 14, 15, 18, 19, 20, 21, 22, 24, 26, 27, 28, 29, 30 (Use simple interest), 31 - 35, 39, 40, 41, 42, 44, 45, 46, 52, 54, 55, 57, 58

#### **Additional Problems:**

- At a price of \$1.90 per bushel, the annual U.S. demand for barley is 455 million bushels. When the price rises to \$2.70 per bushel, the demand decreases to 415 million bushels. Let  $x$  = the number of bushels in millions that will be demanded if the price is  $y = p(x)$ .
  - Assuming that the price-demand equation  $y = p(x)$  is linear, find an equation for the price-demand equation.
  - Write the revenue function for this situation.
- Suppose that the total cost of producing 100 of a certain item is \$3250, and the total cost of producing 150 of the item is \$4200. Assuming that the cost function  $C(x)$  is linear, find an equation for  $C(x)$ .
- A credit card company charges a nominal annual rate of 21%. If payments are made monthly toward the bill, what interest rate is used to calculate the interest each month?
- If you borrow money and agree to pay the loan off in equal monthly payments at 0.85% per month, what nominal annual rate are you being charged?

**In addition, MA 110 Practice Quizzes for Chapters 1 and 3 are available on the internet. To access these quizzes, go to the course website and then click "MA 110 Practice Quizzes."**

#### **Answers for Additional Problems:**

- (a)  $p(x) = -0.02x + 11$       (b)  $R(x) = -0.02x^2 + 11x$
- $C(x) = 19x + 1350$
- 1.75%
- 10.2%