

MIDTERM 3 STUDY GUIDE

The exam is Friday, December 6.

Scientific calculators will be allowed. No graphing, programmable, or cell phone calculators.

A 4x6 notecard will be allowed.

The following formulas (with their names) from Chapter 5 will be provided to you on the exam (see page 334 of the textbook):

- Sum of Geometric Sequence
- Future Value of Ordinary Annuity
- Present Value of Ordinary Annuity
- Present Value of Deferred Annuity

You will need to be able to decide which of these is appropriate for a particular problem.

You will NOT need any “Annuity Due” formulas. You will NOT need any formulas from 5.5. You WILL possibly need any other formula on page 334. (You can memorize them or put them on your notecard.)

C4R = Chapter 4 Review, p. 277

C5R = Chapter 5 Review, p. 335

You should be able to:

- Find the inverse of a function (C4R #1-7)
- Sketch graphs of exponential or logarithmic functions (C4R #9-13, 27-31).
- Compute logarithms that don't require a calculator (C4R #23-26, 40-42).
- Use properties of logarithms to expand or condense (C4R #32-39).
- Solve exponential and logarithmic equations (C4R #43-54)
- There will be no “mixed base logarithm” equations, but there may be a “quadratic exponential” equation like C4R #47.
- Solve story problems that require exponential equations (C4R #58-62, 4.6 Homework #2, 5, 11, 14, 16, 17).
- Know how to use the formula for exponential growth:

$$y = y_0 e^{kt}$$

It may be useful to know the half life formula

$$y = y_0 \left(\frac{1}{2} \right)^{\frac{t}{h}}.$$

Here y is the amount after time t , y_0 is the initial amount, and h is the half-life, and k is the continuous growth rate.

- Write formulas for arithmetic and geometric sequences, and use the appropriate formulas to find the sum of the first few terms (C5R, #1-13).
- Use any of the financial formulas to answer questions from 5.2-5.4 (C5R, #14-29). There will not be any “Annuity Due” problems. Be sure to practice using your calculator!
- Be able to decide which formula is appropriate for the questions from Chapter 5.

- I will specify for each problem whether to leave your answer in terms of logarithms or whether I want you to use your calculator to get a decimal answer. Be sure you know how to do logarithms and exponential functions on your calculator!