Business Calculus MiniTest 4 Review

Dr. Graham-Squire, Fall 2012

•The test will cover sections 5.4-5.6, 6.1 and 6.2.

•To study, you should look over your notes, rework HW problems on WebAssign, quizzes, and problems from the notes, as well as work out the practice problems given for each section. You can also look at the old tests on my website: Summer 2012, Test 3, questions 4, 5, 6 and 7; Summer 2008, Test 3, questions 3-7; Summer 2007, Test 3, questions 2-5 and 7. The Review Questions at the end of Chapters 5 and 6 are also good practice (though not all questions in the review will match this mintiest).

•Calculators are allowed on this test, but for certain questions you may not be allowed to use a calculator. It is highly recommended that you bring a calculator because you cannot use cell phones or computers during the test.

•Some Practice Problems to work on:

1. Find $f'(x)$ if $f(x) = \ln \dfrac{e^{3x}+4}{8}$.
2. The percentage of alcohol in a person's bloodstream t hr after drinking 8 fluid oz of whiskey is given by
$$A(t) = 0.23te^{-0.4t}$$
(a) How fast is the percentage changing after 1 hour? After 4 hours?
(b) Use calculus to find at what value of t is the percentage at a *maximum*. What is the percentage at that time?
3. Use logarithmic differentiation to find $f'(x)$ if $f(x) = x^{2x}$.
4. The element Grahamsquireium has a half-life of 250 years. Given a 100 gram sample, how much of it will be left after 300 years?
5. Find the indefinite integral $\displaystyle\int x\left(\sqrt{x} + \frac{3}{x^2} - \frac{2e^x}{x}\right)\,dx$.
6. Find the indefinite integrals:
(a) $\displaystyle\int x^2(2x^3+3)^4\,dx$.
(b) $\displaystyle\int \frac{1}{x(\ln x)^2}\,dx$.