

# Math 15, Exam 1, Sep 8, 2005

## Instructions

Calculators may be used on this exam.

However, you must show your work in order to receive credit.

1. Be sure to print your name and your instructor's name in the space provided.
2. Work all problems. Show all work. Full credit will be given only if work is shown which fully justifies your answer.
3. There will be sufficient space under each problem in which to show your work.
4. Circle, box, or underline each final answer. *All final answers must be simplified!*
5. This exam has 4 sheets of paper (front and back). Do not remove the staple!  
There are 100 points. Each of the ten problems is 10 points.
6. **Turn off your cell phone if you have one with you.**

## Get ready for the exam

1. No formulas will be supplied. You are asked to remember formulas and techniques from Math 14.
2. Problems will be (directly or slightly modified) from homework problems assigned from Chapter 7.
3. You should be able to do all of the following:
  - a. **Find the inverse of a function.**
  - b. **Differentiate an inverse function using Theorem 7 on page 418.**
  - c. **Find derivatives and integrals of exponential and logarithmic expressions.**
  - d. **Perform logarithmic differentiation.**
  - e. **Differentiate and integrate inverse trigonometric expressions.**
  - f. **Evaluate limits of indeterminate forms using L'Hospital's rule.**
4. Required skills from Math 14:
  - a. Find relative and absolute extrema.
  - b. Find equations of tangent lines.
  - c. Find higher order derivatives.
  - d. Find areas and volumes using calculus.
  - e. Know how to use mean value theorems.
  - f. Know how to integrate by change of variable substitution.
  - g. Know how to differentiate by using chain rule, product rule, quotient rule.

