

# Exam 1

Tuesday, September 22, 2009

Study what you don't know!

**Covering:**

Sections 7.1 – 7.5, 7.7  
Sections 8.1 and 8.2

**Format:**

The exam will contain approximately 10 questions, some with multiple parts.

- ~ 10 points – True/False
- ~ 10 points – Definitions
- ~ 10 points – Explanations
- ~ 70 points – Problems

**Definitions:**

- one-to-one function
- inverse function
- natural logarithm function
- exponential function (base e)
- other exponential functions and logarithms
- inverse trigonometric functions

**Specifics:**

- Use the Inverse Function Theorem (Theorem 7.4.7) to find the derivative of an inverse function
- Basic skills including:
  - solving equations involving logarithms and exponential functions
  - finding the domain and range of a function
  - taking derivatives of exponential functions, logarithmic functions, and inverse trigonometric functions
  - logarithmic differentiation
  - finding antiderivatives and definite integrals involving
    - \* logarithmic functions,
    - \* exponential functions
    - \* inverse trigonometric functions
  - graphing
- Find the derivative of one of the inverse trigonometric functions
- Solve a first-order separable or linear differential equation

**Some warm-up problems:**

- page 365 # 19, 30, 86, 106, 107
- page 373 # 2, 18, 42
- page 382 # 30, 45, 54, 55
- page 391 # 6, 18
- page 406 # 16, 32, 39
- page 419 # 10, 11, 18
- page 425 # 16, 22, 39

Bring your review questions to class on Monday, September 21. We will review the questions that YOU bring.

**Calculators may be used to check your answers,  
but may *not* be used to justify answers.**

**The use of a cell phone during the exam will be considered an  
**honor code violation!****