

**REVIEW FOR TEST 3**  
**MATH 170**  
**SPRING 2008**

The test material is from sections 3.10, 4.1, 4.3 and 4.4 from the book. Besides other Precalculus prerequisites you should know:

- The laws of exponents.
- The logarithmic function, its properties, laws and derivative.
- The exponential function, its properties, laws and derivative.
- The basic differentiation rules, the product rule, the quotient rule and the chain rule and how to use them to find derivatives.
- How to find a domain of a function.
- How to find a horizontal, a vertical and an oblique asymptote of a function.
- How to make a linear approximation of a function at a given point.
- What is a differential of a function.
- How to find the change  $\Delta f = f(x_0 + dx) - f(x)$ .
- How to find the approximation error  $|\Delta f - df|$ .
- What is a critical points and how to find it.
- How to find the absolute extrema of a continuous function on a finite closed interval.
- How to use the first derivative test to find the intervals of increasing and decreasing of a function.
- The first derivative test for local extrema.
- How to use the second derivative test to find the intervals of concavity of a function.
- What is a point of inflection and how to find it.
- The second derivative test for local extrema.
- The strategy for graphing  $y = f(x)$ .