Exam 2 Topic List

Differentiation Rules for Functions

- Know derivative rules for function operations (product, quotient, etc.) – Back Flap #2 – 7
- Know derivative rules for specific functions (power, trigonometric, etc.) – Back Flap #1, 8 – 19, 21
- Compute derivatives of inverse functions at a point using: $\left(f^{-1}\right)'(a) = \dfrac{1}{f'\left(f^{-1}(a)\right)}$
- Apply *logarithmic differentiation* to derive a function with a variable base and variable power: $y = \left(f(x)\right)^{g(x)}$
- Find derivatives of functions at a point using a table of values or a graph

Tangent Lines

- Write the equation of a tangent line given any type of function and an *x*-value
- Solve problems based on tangent line concepts (e.g., Supplement 3.3 #2)

Higher-Order Derivatives

- Find the *n*th derivative of a function, where *n* is a reasonable finite value (usually no more than the fourth derivative)

Implicit Differentiation

- Find the derivative of an implicitly-defined relation
- Write the equation of a tangent line given an implicit relation and an *x*-value
- Determine points on an implicitly-defined curve where the slope is a specific value, and where the slope is horizontal or vertical
- Find the second derivative of an implicitly-defined relation