## FROM THE TEXTBOOK

**Sect. 1.1:**
- definition of a function, domain, range
- different ways to represent a function
- the vertical line test

**Sect. 1.2:**
- linear functions
- polynomials
- power and root functions
- rational functions
- trigonometric functions
- exponential and logarithmic functions

**Sect. 1.3:**
- vertical and horizontal translations of graphs
- vertical and horizontal stretching of graphs
- sum, difference, product, quotient of two functions
- composition of functions

**Sect. 2.2**
- the limit of a function
- one-sided limits
- infinite limits

**Sect. 2.3**
- limit laws (pp. 102-104)
- the squeeze theorem

**Sect. 2.4**
- the precise $(\epsilon - \delta)$ definition of a limit
- precise definitions of infinite limits

**Sect. 2.5**
- continuity of a function at a point
- continuity of a function from the left and from the right at a point
- continuity of elementary functions
- limits and continuity (p. 127)
- the intermediate value theorem

**Sect. 2.6**
- limits at $\infty,\ +\infty, -\infty$
- infinite limits at infinity

**Sect. 2.8**
- the derivative of a function at a point
- the equation of the tangent line at a point

**Sect. 2.9**
- the derivative as a function
- continuity of a differentiable function (th. 4 p. 169)

**Sect. 3.1**
- the power rule
- the sum, the difference, and the constant multiple rules

**Sect. 3.2**
- the product and quotient rules
**Sect. 3.4**
- derivatives of trigonometric functions ($\sin x,\ \cos x,\ \tan x,\ \sec x,\ \csc x,\ \cot x$)
**Sect. 3.5**
- the chain rule
**Sect. 3.7**
- derivatives of higher orders
**Sect. 3.11**
- linear approximation **Sect. 4.1**
- the extreme value theorem (p.279)
- critical points
**Sect. 4.2**
- Rolle's theorem
- the mean value theorem
- Th 5, Th 7 on pp. 291-292
**Sect. 4.3**
- increasing, decreasing test
- concavity; concavity test
- inflection points
**Sect. 4.4**
- indetermined forms
- L'Hospital's rule
**Sect. 4.5**
- slant asymptotes
- guidelines for sketching a curve
**Sect. 1.5**
- exponential functions; their graphs
- laws of exponents
- number e
**Sect. 1.6**
- logarithmic functions; their graphs
- laws of logarithms
- natural logarithm
**Sect. 4.7**
- optimization problems
- first derivative test for extreme values
**Sect. 4.9**
- Newton's method
**Sect. 4.10**
- antiderivatives
**Sect. 5.2**
- Riemann sums
- definite integrals as limits of Riemann sums
- properties of the definite integral (pp. 385-387)
**Sect. 5.3**
- the Fundamental Theorem of Calculus

**Sect. 5.4**
- indefinite integrals
- table of integrals (p. 402)
- evaluation of definite integrals

**Sect. 5.5**
- the substitution rule
- the substitution in definite integrals

**Sect. 5.6**
- the logarithm defined as an integral

**Sect. 6.1**
- areas between curves

**Sect. 6.2**
- volumes by slicing
- disk and washer methods

**Sect. 6.4**
- work
- Hooke's law

**Sect. 6.5**
- the average value of a function

**Sect. 8.3**
- center of mass