

Sections 5.1–5.4, 5.6

- Definitions** Continuity (5.1.1, 5.1.5)  
Boundedness of a function (5.3.1)  
Absolute maximum or minimum (5.3.3)  
Uniform continuity (5.4.1)  
Lipschitz function (5.4.4)  
(Strictly) increasing/decreasing/monotone function (5.6)
- Theorems** Sequential criteria for continuity (5.1.3, 5.1.4)  
Combinations of continuous functions (5.2.1, 5.2.2, 5.2.6, 5.2.7)  
Boundedness Theorem (5.3.2)  
Maximum-Minimum Theorem (5.3.4)  
Intermediate Value Theorem (5.3.7)  
Theorems 5.3.9, 5.3.10  
Nonuniform Continuity Criteria (5.4.2)  
Uniform Continuity Theorem (5.4.3)  
Uniform approximation of a continuous function (5.4.10, 5.4.13, 5.4.14)  
Theorem 5.6.1 and Corollary 5.6.2  
Theorem 5.6.4  
Continuous Inverse Theorem (5.6.5)
- Proofs** Example 5.1.6(h)  
Composition of continuous functions (5.2.6)  
Boundedness Theorem (5.3.2)  
Maximum-Minimum Theorem (5.3.4)  
Location of Roots Theorem (5.3.5) or via problem 5.3.11  
Uniform Continuity Theorem (5.4.3)  
Theorem 5.6.1 and Corollary 5.6.2

Sections 6.1–6.4

**Definitions** Derivative of a function (6.1.1)  
Relative minimum/maximum/extremum (6.2)  
Taylor polynomial at  $x_0$  (6.4)  
Convex function (6.4.5)

**Theorems** Differentiable function is continuous (6.1.2)  
Carathéodory's Theorem (6.5.1)  
Theorems 6.1.3, 6.1.6, 6.1.8  
Interior Extremum Theorem (6.2.1)  
Rolle's Theorem (6.2.3)  
Mean Value Theorem (6.2.4)  
Theorem 6.2.5 and Corollary 6.2.6  
Theorem 6.2.7  
Darboux's Theorem (6.2.12)  
L'Hospital's Rule O, I, II (6.3.1, 6.3.3, 6.3.5)  
Cauchy Mean Value Theorem (6.3.2)  
Taylor's Theorem (6.4.1)  
Theorem 6.4.6  
Newton's Method (6.4.7 )

**Proofs** Differentiable function is continuous (6.1.2)  
Theorem 6.1.3  
Example 6.1.7(e)  
Interior Extremum Theorem (6.2.1)  
Rolle's Theorem (6.2.3)  
Mean Value Theorem (6.2.4)  
Theorem 6.2.7

Sections 7.1–7.3, 7.5

- Definitions** Tagged partitions (7.1)  
Riemann Integral (7.1.1)  
Definition 7.2.12  
Indefinite integral (7.3.3)  
Left, Right, Trapezoidal, Midpoint, Simpson approximations (7.5)
- Theorems** Theorems 7.1.3, 7.1.5, 7.1.6  
Cauchy Criterion (7.2.1)  
Squeeze Theorem (7.2.3)  
Theorem 7.2.5  
Theorems 7.2.7, 7.2.8  
Additivity Theorems (7.2.9, 7.2.13)  
Fundamental Theorem of Calculus (First Form) (7.3.1)  
Theorem 7.3.4  
Fundamental Theorem of Calculus (Second Form) (7.3.5, 7.3.6)  
Substitution Theorem (7.3.8)  
Theorems 7.3.14, 7.3.15, 7.3.16  
Integration by Parts (7.3.17)  
Taylor's Theorem with Remainder (7.3.18)  
Theorems 7.5.3, 7.5.6, 7.5.8  
Error estimates for Trapezoidal, Midpoint, Simpson approximations (7.5.4, 7.5.7, 7.5.9)
- Proofs** Example 7.1.4  
Theorem 7.2.7  
Fundamental Theorem of Calculus (First Form) (7.3.1)  
Fundamental Theorem of Calculus (Second Form) (7.3.5)  
Taylor's Theorem with Remainder (7.3.18)