Test Knowledge

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)
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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 partititions (7.1)
Riemann Integral (7.1.1)
Definition 7.2.12
Indefinite integral (7.3.3)
Left, Right, Trapezoidal, Midpoint, Simpson approximations (7.5)

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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)
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Fundamental Theorem of Calculus (Second Form) (7.3.5)
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