

Chapter 1: Functions

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| 1.1 | Functions and their representations |
| 1.2 | Linear functions |
| 1.3 | Polynomial functions |
| 1.4 | Rational and piecewise-defined functions |
| 1.5 | Combining and composing functions |
| 1.6 | Inverse functions |
| 1.7 | Exponential functions |
| 1.8 | Logarithmic functions |
| 1.9 | Trigonometric functions |

Chapter 2: Limits and Continuity

- 2.1** Preview to calculus

- 2.2** Average and instantaneous velocity

- 2.3** Limits of a function

- 2.4** Evaluating limits algebraically

- 2.5** Limits at infinity, infinite limits, and asymptotes

- 2.6** Continuity

- 2.7** Formal definition of a limit

Chapter 3: Derivatives

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| 3.1 | Derivatives and the tangent problem |
| 3.2 | Derivative as a function |
| 3.3 | Basic rules of finding derivatives |
| 3.4 | Product and quotient rules |
| 3.5 | Chain rule |
| 3.6 | Derivatives of trigonometric functions |
| 3.7 | Implicit differentiation |
| 3.8 | Derivatives of exponential functions |
| 3.9 | Derivatives of logarithmic functions |
| 3.10 | Differentiating exponential and logarithmic functions using multiple rules |
| 3.11 | Differentiating trigonometric functions using multiple rules |

Chapter 4: Applications of Derivatives

4.1 Related rates

4.2 Linear approximation and differentials

4.3 Analyzing functions (Global and local extrema)

4.4 Analyzing functions (Mean Value Theorem)

4.5 Analyzing functions (First derivative test, increasing and decreasing functions)

4.6 Analyzing functions (Second derivative test and concavity)

4.7 Analyzing functions (Sketching curves)

4.8 Applied optimization

4.9 Indeterminate forms and L'Hopital's rule

Chapter 5: Integrals

- 5.1** Antiderivatives and indefinite integrals

- 5.2** Antiderivatives of trigonometric, exponential, and reciprocal functions

- 5.3** Integrals and the area problem

- 5.4** The definite integral

- 5.5** The Fundamental Theorem of Calculus

- 5.6** Finding distance from velocity

- 5.7** Net Change Theorem

- 5.8** Integration by substitution

Appendix: Supplementary Homework Questions

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|-------------|--|
| 6.1 | Homework: Functions and their representations |
| 6.2 | Homework: Linear functions |
| 6.3 | Homework: Polynomial functions |
| 6.4 | Homework: Rational and piecewise-defined functions |
| 6.5 | Homework: Combining and composing functions |
| 6.6 | Homework: Inverse functions |
| 6.7 | Homework: Exponential functions |
| 6.8 | Homework: Logarithmic functions |
| 6.9 | Homework: Trigonometric functions |
| 6.10 | Homework: Derivatives and the tangent problem |

Appendix: Supplementary Homework Questions

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|-------------|--|
| 6.11 | Homework: Derivative as a function |
| 6.12 | Homework: Basic rules of finding derivatives |
| 6.13 | Homework: Product and quotient rules |
| 6.14 | Homework: Chain rule |
| 6.15 | Homework: Derivatives of trigonometric functions |
| 6.16 | Homework: Implicit differentiation |
| 6.17 | Homework: Derivatives of exponential functions |
| 6.18 | Homework: Derivatives of logarithmic functions |
| 6.19 | Homework: Related rates |
| 6.20 | Homework: Linear approximation and differentials |

Appendix: Supplementary Homework Questions

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|-------------|--|
| 6.21 | Homework: Analyzing functions (Global and local extrema) |
| 6.22 | Homework: Analyzing functions (Mean Value Theorem) |
| 6.23 | Homework: Analyzing functions (First derivative test, increasing and decreasing functions) |
| 6.24 | Homework: Analyzing functions (Second derivative test and concavity) |
| 6.25 | Homework: Analyzing functions (Sketching curves) |
| 6.26 | Homework: Applied optimization |