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Study Guide for Unit 1

Important definitions. You should know the meanings of the following terms. Pay close attention to the boldfaced words.

Term	Lecture	Reference	
Secant line	Lecture 1	§2.1	p. 53
Tangent line	Lecture 1	§2.1	p. 53
Difference quotient	Lecture 1	§2.3	p. 58
Derivative	Lecture 1	§2.3	p. 58
Differentiation	Lecture 1	§2.3	p. 58
Differentiable function	Lecture 1	§2.3	p. 58
Velocity	Lecture 1	§2.4	p. 64
Speed	Lecture 1	§2.4	p. 64
Acceleration	Lecture 1	§2.4	p. 65
Limit	Lecture 2	Notes C	
Left-hand limit/right-hand limit	Lecture 2	Notes C	
Continuous	Lecture 2	Notes C	
Discontinuity	Lecture 2	Notes C	
Removable discontinuity	Lecture 2	Notes C	
Jump discontinuity	Lecture 2	Notes C	
Infinite discontinuity	Lecture 2	Notes C	
Essential discontinuity	Lecture 2	Notes C	
Composite function	Lecture 4	§3.3	p. 93
Implicit function	Lecture 4	§3.5	p. 102
Exponential function	Lecture 5	§8.2	p. 261
Logarithm function	Lecture 5	§8.2	p. 262
Base of a logarithm	Lecture 5	§8.2	p. 262

Skills checklist. Be able to do each of the following.

1. Find the secant line to a graph at two points. Find the slope of the secant line.
2. Compute the difference quotient.
3. Recognize continuity and discontinuity. Use this to evaluate limits, and know when limits are undefined. Identify a discontinuity as a removable, jump, infinite or essential discontinuity.
4. Compute the derivative as the limit of a difference quotient.
5. Find the equation of the tangent line to a graph at a point.
6. Find the velocity and acceleration of a particle.
7. Differentiate a polynomial.
8. Differentiate a ratio of polynomials.
9. Know the product, quotient, chain and power rules for differentiation.
10. Compute higher derivatives.
11. Compute with exponential and logarithm functions.