

Study Guide for Unit 3

Important definitions. You should know the meanings of the following terms. (All of them are important, so none of them will be bold-faced.)

Term	Lecture	Reference
Differentials	Lecture 13	§5.2 p. 164
Antiderivative	Lecture 13	§5.2 p. 171
Antidifferentiation	Lecture 13	§5.2 p. 171
Indefinite integral	Lecture 13	§5.2 p. 171
Integrand	Lecture 13	§5.2 p. 171
Constant of integration	Lecture 13	§5.2 p. 172
Sigma notation (Σ)	Lecture 14	§6.3 p. 194
Riemann sum	Lecture 14	§6.4 p. 199, 203
Definite integral/Riemann integral	Lecture 14	§6.4 p. 201, 203
Differential equation	Lecture 17	§5.4 p. 178
General/particular solution	Lecture 17	§5.4 p. 179

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

1. Solve related rates problems: Determine an unknown rate-of-change using a constraint equation and a known rate-of-change.
2. Use Newton's method to approximate the zeros of a differentiable function.
3. Compute differentials of differentiable functions.
4. Compute antiderivatives of simple functions, e.g., polynomial functions.
5. Use substitution to compute antiderivatives of more complicated functions.
6. Compute simple Riemann sums by induction.
7. Use the Fundamental Theorem of Calculus to compute definite integrals.
8. Solve separable differential equations.