

Course Outline

INTRODUCTION TO ALGEBRA

201-007-50

Ponderation: 4-2-4

Credits: 3 1/3

Pre-requisites: High School math: 314, 414, 416, 426, 514, 574 or a failure in 436 or 526

Introduction. This course is designed for students who need to review or relearn basic algebraic concepts and skills. Successful completion of this course will allow you to take Functions and college level mathematics courses.

Course Objectives. The student will acquire a basic vocabulary in mathematics, develop skills in manipulating and simplifying algebraic expressions, acquire expertise in solving (linear, quadratic, radical and systems of linear) equations, learn basic principles of graphing, use Pythagoras' theorem, trigonometric ratios, and prepare for other mathematics courses at the college level.

Course Content. Numbers refer to sections in the textbook. Examples (in parentheses) and the notes provided by the teacher illustrate the content. You may also wish to take advantage of the chapter tests, chapter reviews, and cumulative reviews in the textbook. You are responsible for all problems and exercises in the text relevant to material covered in class, as well as all examples and topics illustrated or covered or assigned in class. The detailed content is on the next page.

Required Texts. *Introductory Algebra*, 7th edition, by Aufmann, Barker and Lockwood. \$140 + tax.

Teaching Methods. Classes are primarily lectures, with discussions and problem-solving. Homework normally amounts to 4 hours per week. If you don't understand, ask for help! You are responsible for the material covered in missed classes. Graphing or programmable calculators are not permitted on quizzes, tests or final examinations.

Mathematics Department Attendance Policy. Regular attendance is expected. Missing six classes is grounds for automatic failure in this course. Many failures are due to missing classes.

Evaluation Plan. The *Final Grade* is a combination of the *Class Mark* and the mark on the *Final Exam*. The *Class Mark* will include the student's results from three or more tests (worth at least 75% of the *Class Mark*), and possibly homework, quizzes and other assignments. The specifics of the *Class Mark* will be given by your instructor during the first week of classes in an appendix to this outline.

The *Final Grade* is whichever is the higher of:

(i) 50% *Class Mark* and 50% *Final Exam Mark* or (ii) 25% *Class Mark* and 75% *Final Exam Mark*

Students choosing not to write the final examination will receive a failing grade of 50% or their *Class Mark*, whichever is less.

Course Costs in addition to text. Scientific calculator (\$20).

College Policies. Cheating and plagiarism are not accepted at John Abbott College. For information on student rights and responsibilities see the Institutional Policy on the Evaluation of Student Achievement (IPESA) in your agenda. In the event you wish a grade review, you must keep the test at least one month past the grade review deadline.

Verbal problems will be presented throughout the course to illuminate the content.

- A. Trigonometric ratios (instructor's notes)
- B. Simple Interest (instructor's notes and 3.1)

- 1.1 Opposites and absolute values (p8: 43–70) *Pre-algebra review.*
- 1.4 Exponents and precedence (p28: 1–62)
- 1.6 Addition and Subtraction of rational numbers (p41: 1–108)
- 1.7 Multiplication and Division of rational numbers (p51: 1-68, 89-138)

- 2.1 Evaluating variable expressions (p81: 1–58) *The real number system.*
- 2.2 Simplifying variable expressions (p89: 3–141)

- 3.1 Introduction to equations (p126: 3–20, 23–64, 67–176) Emphasize Simple Interest #148-153
- 3.2 Linear equations I, with applications (p140: 1–122) *Linear Equations*
- 3.3 Linear equations II, with applications (p150: 1–71, 73–77)
- 3.4 Sentences and equations (p158: 1–42)
- 3.5 Geometry: concepts, formulas and applications (p165: 1–37)

- 4.1 Adding and subtracting polynomials (p195: 1–58) *Polynomials.*
- 4.2 Multiplying monomials (p199: 3–80)
- 4.3 Multiplying polynomials (p205: 1–116)
- 4.4 Integer exponents (p215: 1–94, 123–131)
- 4.5 Dividing polynomials (p221: 1–53)

- 5.1 Common factors (p241: 1–68) *Factoring.*
- 5.2 Factoring monic quadratic polynomials (p247: 3–141)
- 5.3 Factoring quadratic polynomials (p255: 1–130, 132–137)
- 5.4 Special factoring formulas (p263: 3–132)
- 5.5 Solving equations by factoring, with applications (p271: 2–84, 87–92)

- 6.1 Multiplying and dividing rational expressions (p293: 3–55, 58–77)
- 6.2 The least common denominator (p299: 1–53, 55–60) *Rational expressions.*
- 6.3 Adding and subtracting rational expressions (p306: 1–20, 23–82)
- 6.4 Complex fractions (p313: 1–39)
- 6.5 Solving equations containing rational expressions (p317: 3–35, 37–42)
- 6.7 Literal equations (p329: 1–40)

- 7.1 The Cartesian plane (p361: 1–12, 15–28) *Linear equations in two variables.*
- 7.2 The graph of a linear equation in two variables (p371: 1–45)
- 7.3 The slope and intercepts of a straight line (p381: 1–18, 21–40, 45–65, 69)
- 7.4 Equations of straight lines (p389: 3–26, 31–40;
also: exercises given by the instructor on parallel and perpendicular lines)

- 8.1 Solving systems of linear equations by graphing (p409: 1–39) *Systems in two variables.*
- 8.2 Solving systems of linear equations by substitution (p419: 3–32)
- 8.3 Solving systems of linear equations by elimination (p427: 1–36)

- 10.1 Introduction to radical expressions (p485: 3–72) *Radical expressions.*
- 10.2 Adding and subtracting radical expressions (p489: 5–60)
- 10.3 Multiplying and dividing radical expressions (p495: 2–37, 40–69, 71, 72)
- 10.4 Solving equations involving radical expressions (p501: 1–30)

- 11.1 Solving quadratic equations by factoring, taking square roots (p519: 1–63)
- 11.2 Completing the square (p525: 1–71) *Quadratic equations.*
- 11.3 The quadratic formula (p529: 1–47, 52–59)