

Using this Chapter with the Functions and Relations Course and the Functions Course

Functions and Relations (University)
Students in this course must be prepared for the abstract mathematical concepts of the Geometry and Discrete Mathematics course. These students will be required to broaden their skills in solving complex problems and to also think and compute more abstractly. To help prepare these students for this course, consider the following:
6.1 Give students ample opportunity to work with the ambiguous case. This will give students the opportunity to consider several cases when solving a problem.
6.2 Stress the three-dimensional problems, which are more complex in nature and will provide practice with challenging problems. Encourage students to generate multiple solutions to the same problem and, where appropriate, use technology to verify their solutions.
6.5 Discuss the notion of formal proof, contrasting it with the illustrative method used in 6.4. Discuss the idea of direct proof and encourage students to prove the identities using more than one approach.
6.6 Focus on using an algebraic approach when solving equations. Use the graphing calculator only as a tool to verify the finding of the algebraic solution.
It may be beneficial to give students a complex problem solving set that they can work on throughout the chapter. This will encourage students to work individually. Encourage students to collaborate when necessary and provide in class time on occasion to promote this.
Functions (University/College)
Students in this course must be prepared to build on their experience with functions if they plan to take the Advanced Functions and Introductory Calculus course in grade 12. Note that these students will not encounter trigonometric functions in the calculus course. However, these students will use polynomial, rational, exponential, and logarithmic functions to model real-world problems in a range of applications. By the time they complete the grade 11 course, students' skills in using a graphing calculator should be highly developed. To help prepare these students for this course, consider the following:
6.2 Emphasize the problem solving model on text p. 518. Establish a consistent model to help students deal effectively with the increasingly complex types of problems in the Advanced Functions and Introductory Calculus course.
6.5 and 6.6 provide students with the opportunity to hone their algebraic manipulation skills. Students who move on to the Calculus course will be expected to be proficient in the algebraic manipulation of polynomials. These two sections stress the need for: sharp factoring skills, the ability to find and use a common denominator when adding/subtracting rational expressions, and the ability to simplify algebraic expressions.
6.6 Here, students use the graphing calculator to solve quadratic trigonometric functions. It is important that they have time to use this tool, as they will use it in the Calculus course to investigate polynomial, rational, exponential, and logarithmic functions. In this section students enhance their skills with graphing, adjusting the window to examine a portion of a function, and determining a function's zeros.