

Specific Expectations Addressed in the Chapter

The following expectations are common to the Functions and Relations course and the Functions course.

- FA1.05 determine the sum of the terms of an arithmetic or a geometric series, using appropriate formulas and techniques
- FA2.01 derive the formulas for compound interest and present value, the amount of an ordinary annuity, and the present value of an ordinary annuity, using the formulas for the n th term of a geometric sequence and the sum of the first n terms of a geometric series
- FA2.03 solve problems involving the amount and the present value of an ordinary annuity
- FA3.01 analyse the effects of changing the conditions in long-term savings plans (e.g., altering the frequency of deposits, the amount of deposit, the interest rate, the compounding period, or a combination of these) (Sample problem: Compare the results of making an annual deposit of \$1000 to an RRSP, beginning at age 20, with the results of making an annual deposit of \$3000, beginning at age 50)
- FA3.02 describe the manner in which interest is calculated on a mortgage (i.e., compounded semi-annually but calculated monthly) and compare this with the method of interest compounded monthly and calculated monthly
- FA3.03 generate amortization tables for mortgages, using spreadsheets or other appropriate software
- FA3.04 analyse the effects of changing the conditions of a mortgage (e.g., the effect on the length of time needed to pay off the mortgage of changing the payment frequency or the interest rate)
- FA3.05 communicate the solutions to problems and the findings of investigations with clarity and justification
- OC3.02 present problems and their solutions to a group, and answer questions about the problems and the solutions
- OC3.03 communicate solutions to problems and to findings of investigations clearly and concisely, orally and in writing, using an effective integration of essay and mathematical forms
- OC3.04 demonstrate the correct use of mathematical language, symbols, visuals (e.g., diagrams, graphs), and conventions
- OC3.05 use graphing technology effectively (e.g., use appropriate menus and algorithms; set the graph window to display the appropriate section of a curve)

What “big ideas” should students develop in this chapter?

Students who have successfully completed the work of this chapter and who understand the essential concepts and procedures will know the following:

- Almost any financial situation can be modelled with a geometric series.
- Also many real-life situations can be modelled with sequences or series, which can be either geometric or arithmetic.
- Different technologies, for example, graphing calculators or spreadsheet software, have different advantages, and one technology may be more appropriate than another.
- The effects of changing the parameters of repaying a loan or investment can be analyzed efficiently using technology.