
The Chapter Problem—Financial Planning Questions

- CP1.** Visit a local bank or credit union, or search the Internet to obtain information about registered retirement savings plans (RRSPs), guaranteed investment certificates (GICs), registered education savings plans (RESPs), and registered income funds (RIFs). Briefly describe each type of savings plan and explain its purpose.
- CP2.** Bart's education fund earns interest at 6%/a, compounded monthly. Find the value of the first \$25 deposit after
- (a) 1 month (b) 2 months (c) 3 months (d) 4 months (e) 36 months
- CP3.** Show why the sequence of the monthly values of the \$25 deposit is a geometric sequence. Determine an expression for t_n , the value of the first deposit after n months.
- CP4.** Find the sum of the first eight terms of the sequence in CP3.
- CP5.** Bart's education fund earns 6%/a, compounded monthly. Create a spreadsheet to represent the monthly balance in the fund. Use it to determine the balance after the 20th payment.
- CP6.** How many payments will take place by the time Bart reaches his 18th birthday? Determine the accumulated value of Bart's education fund on his 18th birthday.
- CP7.** Create an amortization table to represent the repayment of Mr. Sacchetto's car loan. Print the table.
- CP8.** When will the car loan be paid? What is the amount of the final payment?
- CP9.** Can you create an amortization table to represent the repayment of Mr. Sacchetto's mortgage? Explain.
- CP10.** Confirm the accumulated value of Bart's education fund on his 18th birthday, including the payment on his 18th birthday. Use the formula for the accumulated value of a ordinary simple annuity.
- CP11.** Can you determine the periodic payment for the registered income fund (RIF) given what you know about the accumulated value of an annuity? Explain.
- CP12.** Mr. Sacchetto intends to make a deposit at the end of every three months in a savings account that earns 8%/a, compounded quarterly, to meet his retirement goal of having \$120 000 in savings at age 55.
- (a) Draw a time line to represent the accumulated values of Mr. Sacchetto's deposits in the savings account.
- (b) List the series that represents the accumulated values of the RIF.
- (c) For his savings account, determine the quarterly deposit that Mr. Sacchetto must make to meet his retirement goal.
- (d) Determine how much more money in total he would have to deposit if the account pays only 6%/a, compounded quarterly.
- CP13.** Can you apply the formula for the present value of an ordinary simple annuity to determine Mr. Sacchetto's new monthly mortgage payment? Explain.

- CP14.** At age 55, Mr. Sacchetto may choose between two RIF options for investing the \$120 000 savings. Option A provides monthly payments from an RIF that pays 7.2%/a, compounded monthly. Option B provides monthly payments from an RIF that pays 7.25%/a, compounded quarterly.
- (a) Can you use the formula for the present value of an ordinary simple annuity to solve for the RIF payment under each option? Explain.
 - (b) For option A, draw a time line to represent the present value of the payments he would receive.
 - (c) Determine the monthly RIF payment he would receive under option A.
- CP15.** Use the formula for the present value of an ordinary simple annuity to estimate the term of Mr. Sacchetto's car loan.
- CP16.** What interest rate, compounded monthly, is equivalent to 8.4%/a, compounded semiannually? Without technology, use this rate to find Mr. Sacchetto's new monthly mortgage payments. Recall that he owes \$77 000 and has 20 years remaining in the term. Determine the principal still owing on his mortgage after five years.
- CP17.** Use the **TVM Solver** to verify the new payment and outstanding balance.
- CP18.** Recall that, at age 55, Mr. Sacchetto may choose between two RIF options for investing the \$120 000 savings. Option A provides monthly payments from an RIF that pays 7.2%/a, compounded monthly. Option B provides monthly payments from an RIF that pays 7.25%/a, compounded quarterly. Without using the **TVM Solver**, determine the monthly RIF payment Mr. Sacchetto would receive if he selects Option B.
- CP19.** Write the values that you would enter for **N**, **I%**, **PV**, **FV**, **P/Y**, and **C/Y** into the **TVM Solver** to find the monthly RIF payment Mr. Sacchetto would receive if the fund pays 7.25%/a, compounded quarterly. Verify your solution for question CP18.
- CP20.** Which RIF payment option should he choose?
- CP21.** Use technology to create an amortization table for the repayment of his mortgage for the first two years.
- CP22.** Determine how much principal he still owes on the mortgage after five years.
- CP23.** Determine the total amount of interest paid and the amount of principal repaid after the 30th payment.
- CP24.** At the end of the second year of his mortgage, Mr. Sacchetto wins \$7500 at bingo. He decides to make a lump-sum payment on the mortgage at the end of the second year. How much sooner will the mortgage be repaid if he continues to make payments equal to the payment in question CP19?