
Chapter 2 Test

1. Knowledge and Understanding

Anna begins working for \$30 000/a and expects a raise of \$500 every quarter. How much will she earn in the first five years of this job?

Choose question 2 or question 3. Do not solve both questions.

2. Cheyenne began a new job that pays \$1000 for the first month. Her pay increases by 5% at the end of each subsequent month. Determine the total pay Cheyenne received for the last four months of her first year on the job.
3. The maximum height of a bouncing basketball is 0.6 of the maximum height of the previous bounce. The basketball is dropped from a height of 4 m.
 - (a) What is the maximum height of the ball after the fourth bounce?
 - (b) What is the total vertical distance travelled by the ball when it touches the ground after the sixth bounce? Round your answer to two decimal places.
4. An annuity pays 6.6%/a, compounded monthly. A periodic payment of \$200 is paid at the end of each month for eight months.

- (a) Use the **TVM Solver** to calculate the value of the annuity.

Write the values in the screen.

N =	_____
I% =	_____
PV =	_____
PMT =	_____
FV =	_____
P/Y =	_____
C/Y =	_____
PMT: END BEGIN	

- (b) Use the **TVM Solver** to calculate the value of the annuity if the monthly payment were made at the beginning of each month instead. Write the values in the screen.

N =	_____
I% =	_____
PV =	_____
PMT =	_____
FV =	_____
P/Y =	_____
C/Y =	_____
PMT: END BEGIN	

- (c) Explain the differences between the two payment options.

5. Suppose your favourite aunt deposits \$100 into a special account on your first birthday and on every other birthday, up to and including your 16th birthday. The account pays 8%/a, compounded quarterly. What is the amount in the account on your 16th birthday?

- (a) Draw a time line and use algebra to calculate the value of the annuity.
- (b) Complete the spreadsheet with the necessary column headings, formulas, and initial values. Show only the relevant rows.

	A	B	C	D	E	F	G
1							
2							

6. Application

The Mason family decides to spend \$10 000 on home renovations rather than moving. They might pay for this expense with a credit card, but the interest rate is 18%/a, compounded monthly. Solve each question algebraically.

- (a) The family plan to repay the loan in two years. What would be the monthly payment?
- (a) What would be the finance charge?

7. Thinking, Inquiry, Problem Solving

A car dealer advertises a new \$32 000 sports car.

Option A: The dealer's financing plan offers 2.4%/a, compounded monthly, for five years, with monthly payments.

Option B: Receive a rebate of \$3000 if you arrange your own financing.

- (a) For option B, what interest rate would generate the same monthly payment?
- (b) Briefly discuss the advantages and disadvantages of each option.

8. Ms. Burns wants to buy a \$125 000 house. Mortgage rates are currently 7.8%/a, compounded semiannually.

- (a) Calculate the monthly payment and the total interest paid if she amortizes the mortgage for 20 years, for 25 years.
- (b) What factors should she consider before choosing the amortization period?

9. Communication

You have learned to solve an annuity problem using algebra, a spreadsheet, or the **TVM Solver**. Discuss the advantages and disadvantages of each method.