8.4 The TVM Solver

Student Text Pages
442–445

Suggested Timing
80 min

Tools
• TVM Solver

Related Resources
BLM 8-8 Section 8.4 The TVM Solver

Warm-Up

1. Find the final amount of a $750 investment at 5% per year, compounded quarterly for 5 years.
2. How much do you need to invest now, to have $1000 in 2 years, at 6% per year, compounded monthly?

Warm-Up Answers

1. $961.53
2. $887.19

Teaching Suggestions

Warm-Up

- Write the Warm-Up questions on the board or on an overhead. Have students complete the questions independently. Then, discuss the solutions as a class.

Section Opener

- Ask students how easy it is to calculate final amount and present value problems. Generally, they will find them fairly straightforward. Ask them how easy it would be to solve for the interest rate or for the time. This is not so easy. Tell them that computer software and graphing calculators have built-in applications to overcome these difficulties.

Investigate

- Have students work through the Investigates. The Investigates explain how to use the TVM Solver features. Students may have difficulty finding the [ALPHA] [SOLVE] key. SOLVE is above the [ENTER] key.
- Explain to students that N is the total number of years, not the same as the exponent, n. Also explain that interest is entered as a percent, not as a decimal.
- In Investigate 2, the $4000 is the future value. It is not money that can be spent now, so it should be entered as a negative value. Refer students to page 535 of the Technology Appendix for further help with the TVM Solver.
- You may wish to make up a few more examples for practice. Keep to finding the final amount (FV) or present value (PV). The other features will be covered in section 8.5.

Investigate Answers (pages 442-443)

Investigate 1

4. $597.81

Investigate 2

2. FV = −4000 **3.** $3276.28 **4.** $723.72

Key Concepts

- Summarize the keystrokes to ensure the students are familiar with the use of the TVM Solver.

Accommodations

Memory—use index cards with calculator sequences

Gifted—compare the use of a spreadsheet to the use of the TVM Solver; give advantages and disadvantages of each

Discuss the Concepts

- **Question D1** is a review of the use of the TVM Solver. Have students use their own words to remind themselves how each line is entered.

Discuss the Concepts Suggested Answers (page 443)

D1. a) N = 2
I% = 5
PV = 3000
PMT = 0
FV = 0
P/Y = 0
C/Y = 12

b) N = 3
I% = 9
PV = 0
PMT = 0
FV = −5000
P/Y = 1
C/Y = 2

Practise (A)

- Assign **questions 1 to 5** to provide basic skills practice.

Apply (B)

- In **question 9**, students are asked to find the rate at which money doubles. You may wish to hold a discussion on the rule of 72, which states that by dividing the term into 72, you can find the approximate interest rate required to double your money.
- In **question 12**, students may wish to try entering different interest rates to determine how to reach their goal. They could allow the TVM Solver to do all the work for them, but guess and check helps facilitate understanding as a first step.

Extend (C)

- Assign the Extend questions to students who are not being challenged by the questions in Apply.
- **Question 16** encourages students to use the TVM solver to calculate the interest rate. Remind them that they need to make the FV negative.

Mathematical Process Expectations

Process Expectation	Questions
Problem Solving	7,8, 12, 14–17
Reasoning and Proving	7, 8, 10–12, 15–17
Reflecting	7, 11
Selecting Tools and Computational Strategies	1–17
Connecting	3
Representing	n/a
Communicating	7, 8, 11, 15, 17

Ongoing Assessment

- Assess students' ability to translate word problems into a sequence of operations that they can input into their calculator. Have them write their key sequences to verify understanding.

Extra Practice

- You may wish to use **BLM 8-8 Section 8.4 The TVM Solver** for remediation or extra practice.