

# Applications

Before you can really start setting financial goals, you need to determine where you stand financially.

—David Bach, financial consultant

- How might the quote apply to what has been outlined in this section?
- Complete the table to find the single deposit investment amounts. See margin.

| Future Value | Interest Rate                 | Time     | Deposit |
|--------------|-------------------------------|----------|---------|
| \$1,000      | 1.4% compounded annually      | 3 years  | a.      |
| \$2,500      | 1.03% compounded semiannually | 5 years  | b.      |
| \$10,000     | 0.95% compounded quarterly    | 10 years | c.      |
| \$50,000     | 2.25% compounded monthly      | 8 years  | d.      |

- Complete the table to find the periodic deposit investment amounts. See margin.

| Future Value | Interest Rate                 | Time     | Deposit |
|--------------|-------------------------------|----------|---------|
| \$50,000     | 2%, compounded annually       | 8 years  | a.      |
| \$25,000     | 1.5%, compounded semiannually | 4 years  | b.      |
| \$100,000    | 1.25% compounded quarterly    | 10 years | c.      |
| \$1000,000   | 0.94% compounded monthly      | 20 years | d.      |

- Bob wants \$50,000 at the end of 7 years in order to buy a car. If his bank pays 1.2% interest, compounded annually, how much must he deposit each year in order to reach his goal? **\$6,889.80**
- Omar wants to open an account for his grandchildren that he hopes will have \$80,000 in it after 20 years. How much must he deposit now into an account that yields 1.75% interest, compounded monthly, so he can be assured of reaching his goal? **\$56,389.42**
- Mary wants to go on a \$10,000 vacation in 6 months. She has a bank account that pays 2.25% interest, compounded monthly. How much must she deposit each month to afford the vacation? **\$1,658.87**
- Janine is 21 years old. She opens an account that pays 1.25% interest, compounded monthly. She sets a goal of saving \$10,000 by the time she is 24 years old. How much must she deposit each month? **\$272.75**
- Suni needs to repay her school loan in 4 years. How much must she semi-annually deposit into an account that pays 0.9% interest, compounded semi-annually, to have \$100,000 to repay the loan? **\$12,204.45**
- Rich needs \$50,000 for a down payment on a home in 5 years. How much must he deposit into an account that pays 1.16% interest, compounded quarterly, in order to meet his goal? **\$47,186.46**
- Marcy wants to have \$75,000 saved sometime in the future. How much must she deposit into an account that pays 1.3% interest, compounded monthly? Use a graphing calculator to graph the present value function. See margin.

## TEACH

### Exercises 2–10

In each of these exercises a financial goal has been set. Students need to look for verbal clues that alert them to whether or not the problem is a single deposit or a periodic deposit.

### Exercise 10

This exercise does not give students a fixed time by which the balance must be \$75,000. Therefore finding a good viewing window might take a few trials. Encourage students to select maximum  $x$ -values systematically, increasing the max until the graph can be seen crossing  $y = 75,000$ .

## ANSWERS

- Answers will vary but should include the fact that to look ahead to a future value savings, it is necessary to carefully examine what you can afford to save in the present.
- \$959.15
  - \$2,374.82
  - \$9,094.75
  - \$41,770.55
- \$5,825.49/year
  - \$3,043.89/6 months
  - \$2,350.00/quarter
  - \$3,788.89/month
- 10.

