

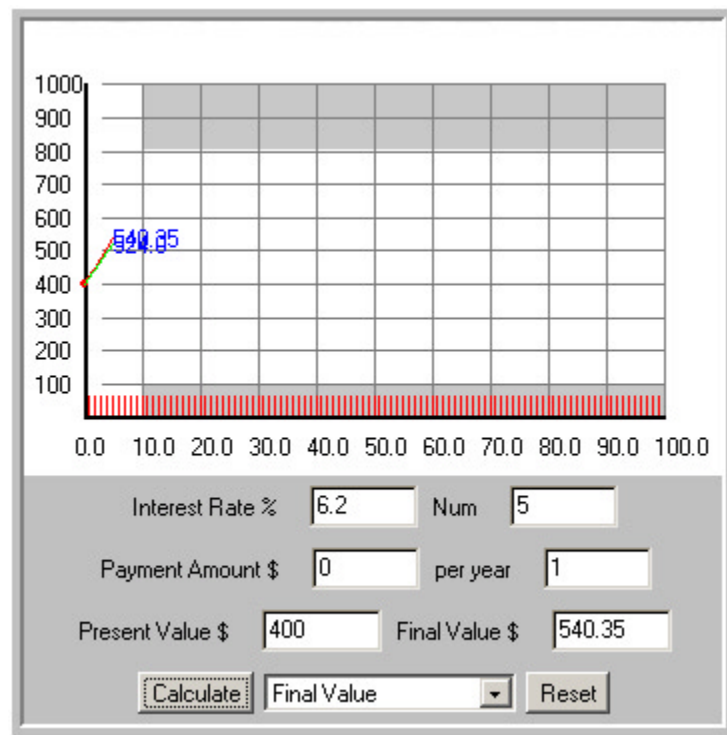
SOLUTIONS - CHAPTER 10 EXERCISES

10.1 When the account is compounded annually, $N = 1$, and the accumulated amount in the account will be

$$\begin{aligned} A &= P\left(1 + \frac{r}{N}\right)^{Nt} \\ &= 400\left(1 + \frac{0.062}{1}\right)^{1 \cdot 5} \\ &= \$540.35 \end{aligned}$$

Thus, a total of $\$540.35 - \$400 = \$140.35$ is earned in interest.

Applet Method Fill in the given entries and calculate the Final Value, as shown below:



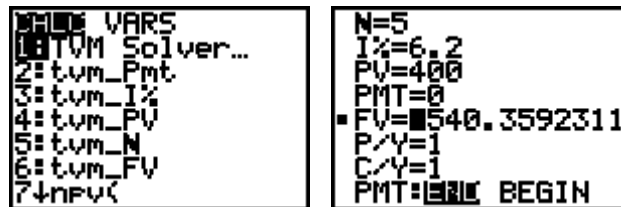
Thus, a total of $\$540.35 - \$400 = \$140.35$ is earned in interest.

Calculator Method (TI-83) Use the built-in function, **TVMSolver**, found under the **FINANCE** option. The values you will be prompted for are as follows:

- N = The total number of times the money is compounded.
- $I\%$ = The interest rate.
- PV = The present value of the money.
- PMT = The payment amount.
- FV = The future value of the money.
- P/Y = The number of payments per year.
- C/Y = The number of times the money is compounded per year.

It is important to remember that either PV or FV will be negative to indicate the flow of money. Ignore the negative when using the values for further calculations. To solve for a particular value, place the cursor at the right of the variable and then press [ALPHA][ENTER] and the value will appear.

For this problem, we enter in all of the values and solve for FV , as shown below:



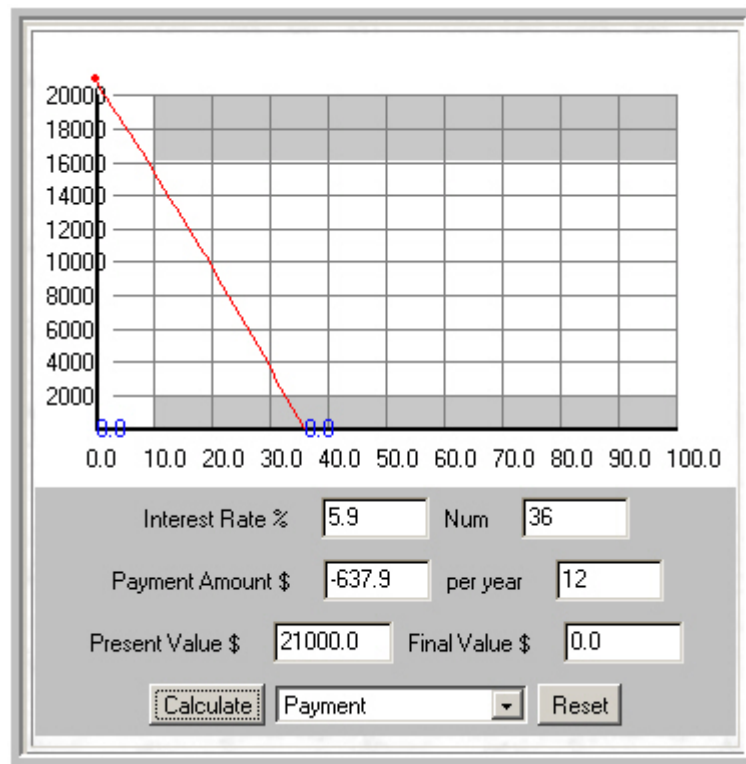
Thus, a total of $\$540.35 - \$400 = \$140.35$ is earned in interest.

10.3 If the account is compounded continuously, then the accumulated amount in the account will be

$$\begin{aligned}
 A &= Pe^{r \cdot t} \\
 &= 400e^{(0.062)(5)} \\
 &= \$545.37
 \end{aligned}$$

Thus, a total of $\$545.37 - \$400 = \$145.37$ is earned in interest.

10.5 Applet Method Fill in the given entries and calculate the Payment Amount, as shown below:



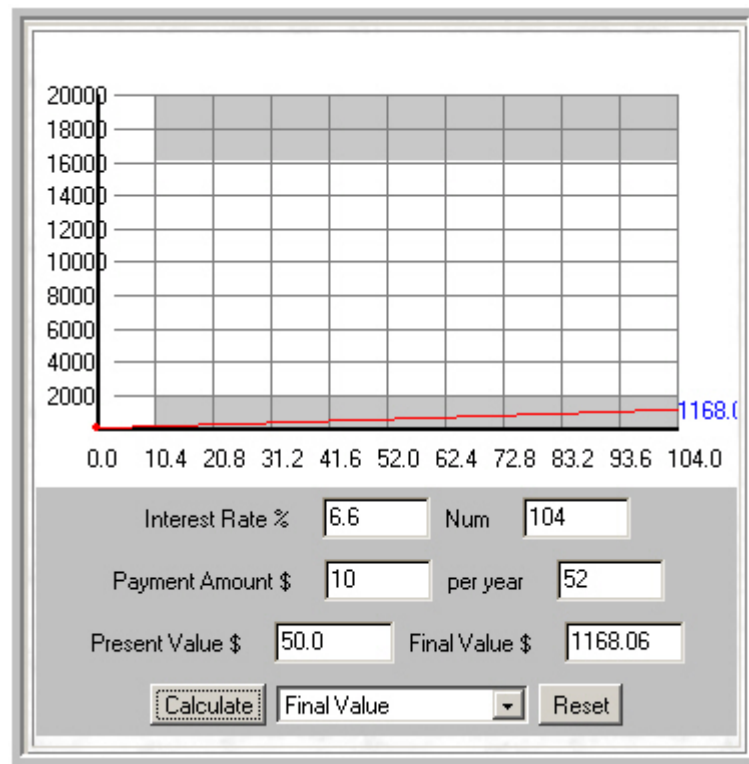
Thus, the monthly payments are approximately \$637.90.

Calculator Method (TI-83) Use the built-in function, **TVMSolver**, found under the **FINANCE** option, as described in the solution to Exercise 10.1. For this problem, we enter in all of the values and solve for *PMT*, as shown below:

<pre> 1: TVM Solver... 2: tvm_Pmt 3: tvm_I% 4: tvm_PV 5: tvm_N 6: tvm_FV 7: tvm_PV </pre>	<pre> N=36 I%=5.9 PV=21000 PMT=-637.90960... FV=0 P/Y=12 C/Y=12 PMT: [] BEGIN </pre>
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Thus, the monthly payments are approximately \$637.91.

10.7 Applet Method Fill in the given entries and calculate the Final Value, as shown below:



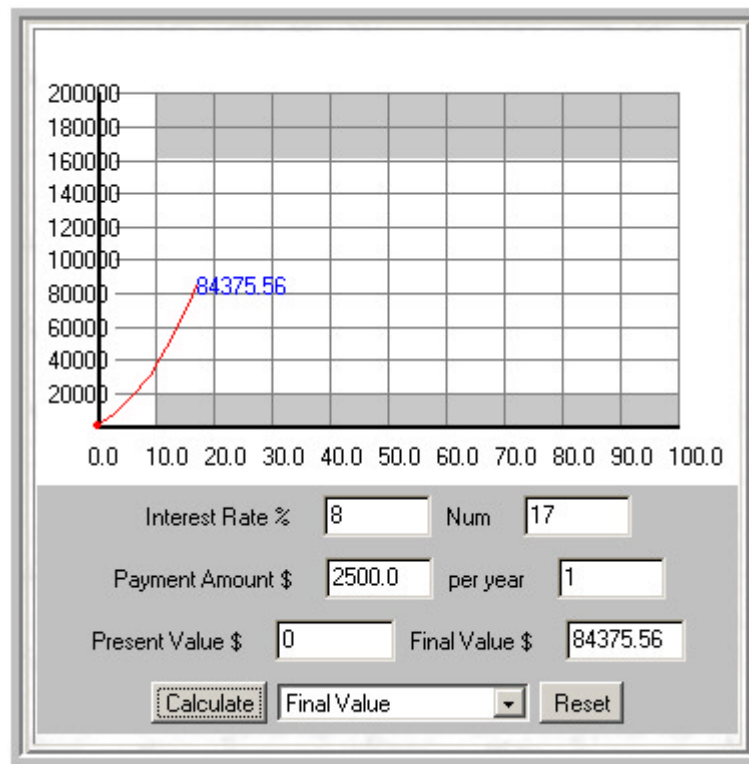
Thus, there will be \$1168.06 in the account after two years.

Calculator Method (TI-83) Use the built-in function, **TVM Solver**, found under the **FINANCE** option, as described in the solution to Exercise 10.1. For this problem, we enter in all of the values and solve for FV , as shown below:

<pre> 1: TVM Solver... 2: tvm_Pmt 3: tvm_I% 4: tvm_PV 5: tvm_N 6: tvm_FV 7: npv </pre>	<pre> N=104 I%=6.6 PV=50 PMT=10 FV=1168.060693 P/Y=52 C/Y=52 PMT: [] BEGIN </pre>
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Thus, there will be \$1168.06 in the account after two years.

10.9 Applet Method Fill in the given entries and calculate the Final Value, as shown below:



Thus, there will be \$84,375.56 in the account after 17 years.

Calculator Method (TI-83) Use the built-in function, **TVMSolver**, found under the **FINANCE** option, as described in the solution to Exercise 10.1. For this problem, we enter in all of the values and solve for *FV*, as shown below:

<pre> 1: VARS 2: TVM Solver... 3: tvm_Pmt 4: tvm_I% 5: tvm_PV 6: tvm_N 7: tvm_FV 8: npv </pre>	<pre> N=17 I%=8 PV=0 PMT=2500 FV=-84375.56421 P/Y=1 C/Y=1 PMT: [] BEGIN </pre>
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Thus, there will be \$84,375.56 in the account after 17 years.