TIME VALUE OF MONEY

Directions: As a group, use a financial function calculator, a spreadsheet program with time value-of-money functions, or financial function calculators on the Internet to solve the following problems.

1. Diane invests $500 today in an account earning 7%. How much will it be worth in 5 years? _____ 10 years? _____ 20 years? _____

2. Same facts as #1, except Diane finds an account earning 10%. How much will it be worth in 5 years? _____ 10 years? _____ 20 years? _____

3. Elaine needs to save up $4,000 in 4 years. If she can set aside $1,000 today, what rate of return does she need on her account? _____

4. Same facts as in #3, except now Elaine can set aside $50 per month. What rate of return does she need on her account? _____

5. Frank wants to buy a $10,000 car. The car dealer offers him financing of 60 payments at 9% interest. What will his payments be? _____

6. Same facts as #5, except the dealer also offers 48 payments at 8%. Now what will Frank’s payments be? _____

7. Gayle has a credit card with a $500 balance on it and a 19% interest rate. If he wants to pay off his card in two years, what will his monthly payments be? _____ How much interest will he pay? _____

8. Same facts as #7, except now the balance is $2,500. What will Gayle’s monthly payments be? _____ How much interest will he pay? _____
Time Value of Money KEY

1. Diane invests $500 today in an account earning 7%. How much will it be worth in 5 years? $701 10 years? $984 20 years? $1,935

Example for 5 years:

See The Effects Of Compound Interest On Your Future Value

What Is The Value Of Compound Interest?

Compound interest can have a dramatic effect on the growth of an investment. Use this interest calculator to illustrate the impact of compound interest on the future value of an asset.

<table>
<thead>
<tr>
<th>Savings and Assumptions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial balance or deposit ($)</td>
<td>500</td>
</tr>
<tr>
<td>Annual savings amount ($)</td>
<td>0</td>
</tr>
<tr>
<td>Annual increase in contributions (%)</td>
<td>0%</td>
</tr>
<tr>
<td>Number of years for the analysis</td>
<td>5</td>
</tr>
<tr>
<td>Before-tax rate on savings (%)</td>
<td>7%</td>
</tr>
</tbody>
</table>

Answer

2. Same facts as #1, except Diane finds an account earning 10%. How much will it be worth in 5 years? $805 10 years? $1,297 20 years? $3,364

3. Elaine needs to save up $4,000 in 4 years. If she can set aside $1,000 today, what rate of return does she need on her account? 41%

4. Same facts as in #3, except now Elaine can set aside $50 per month. What rate of return does she need on her account? 24%

5. Frank wants to buy a $10,000 car. The car dealer offers him financing of 60 payments at 9% interest. What will his payments be? $208

6. Same facts as #5, except the dealer also offers 48 payments at 8%. Now what will Frank's payments be? $244

7. Gayle has a credit card with a $500 balance on it and a 19% interest rate. If he wants to pay off his card in two years, what will his monthly payments be? $25.20 How much
interest will he pay? $104.80 ($25.20 x 24 = $604.80, less the $500 original balance = $104.80)

8. Same facts as #7, except now the balance is $2,500. What will Gayle's monthly payments be? $126.02 How much interest will he pay? $524.48 ($126.02 x 24 = $3,024.48, less the original balance of $2,500 = $524.48)