Chp. 3: Financial Services…Simple & Compound Interest

BUILD YOUR SKILLS

1. Gerard has a savings account at a credit union in Tignish, PEI. Gerard deposits $2000.00 into a savings account that pays 3.00% simple interest per annum.
   a) Calculate the interest that Gerard will earn on his savings after 2 years.
   b) How much money will Gerard have in his account after 2 years if he makes no withdrawals?
2. Solve the following problems using the simple interest formula.
   a) If the interest earned on a deposit is $50.00 and the interest rate is 3.00% per annum invested for 2 years, what is the principal?
   b) How many months does it take to earn $180.00 interest on an investment if the principal is $5000.00 and the interest rate is 2.00% per annum?
   c) Calculate the annual interest rate on an investment if the principal is $4000.00 and the interest is $120.00 earned over three years. Answer as a percent and a decimal.
3. Mei Lin borrowed $1500.00 for vehicle repairs from her parents. She agreed to pay back the loan plus 6.50% simple interest on the $1500.00 added on in equal monthly payments over the next 6 months.
   a) How much interest will Mei Lin have to pay?
   b) What will be the total amount she will have to pay?
   c) What will be her monthly payment for the loan?
4. Use the Rule of 72 to estimate what interest rate would be needed to double your investment in 18 years.
5. A deposit of $1200.00 is invested at 2.60% per annum, compounded semi annually, for 2 years.
   a) Explain why there are four interest periods.
   b) Calculate the interest earned and the investment value at the end of each interest period.
   c) What is the value of the investment at the end of 2 years?
   d) Calculate the interest earned over the 2 years.
6. Calculate the final investment value and the interest for each of the following investments.
   a) $2000.00 at 3.80% per annum, compounded semi-annually for four years.
   b) $1500.00 at 2.60% per annum, compounded quarterly for three years.
   c) $6000.00 at 2.20% per annum, compounded monthly for two years.
   d) $3560.00 at 1.20% per annum, compounded monthly for three months.
7. Which is the better investment? Investing $2500.00 at 2.00% a year, compounded annually, for two years or $2500.00 at 2.00% a year, compounded semi-annually, for two years? Explain your reasoning.

3.2 SIMPLE AND COMPOUND INTEREST

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1. a) $120.00
   b) $2120.00
2. a) $833.33
   b) 21.6 months
   c) 1.0%
3. a) $48.75
   b) $1548.75
   c) $258.13/month
4. 4% per annum
5. a) There are 4 interest periods because the loan is semi-annual, which means interest is calculated twice a year for 2 years.
   b)

Interest period	*Investment value at beginning of period ($)*	*Interest earned ($)*	*Investment value at end of period ($)*
1	$1200.00	$15.60	$1215.60
2	$1215.60	$15.80	$1231.40
3	$1231.40	$16.01	$1247.41
4	$1247.41	$16.22	$1263.63

   c) $1263.63
   d) $63.63
6. a) $A = \$2325.00$; $I = \$325.00$
   b) $A = \$1621.27$; $I = \$121.27$
   c) $A = \$6269.64$; $I = \$269.64$
   d) $A = 3570.69$; $I = \$10.69$
7. The second option is the better investment by $0.51.