**Decision Making in Finance: Using Credit**

VI.D Student Activity Sheet 10: Buying a Losing Investment

**1.** Christina is considering buying a new car with a sticker price of $23,599. Her credit union offers her a three-year car loan at 5.99% annual percentage rate (APR) with 10% as a down payment. Find the monthly payment.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Definition of Variable** | **Value** |
| **N** | number of compounding periods between the time of investment and the time of retirement |  |
| **I%** | annual interest rate (as a percent) |  |
| **PV** | principal, or present value |  |
| **PMT** | amount of each regular payment |  |
| **FV** | future value, or value of the investment at maturity |  |
| **P/Y** | number of payments per year (usually the same as the number of compounding periods per year, ***C/Y***) |  |
| **C/Y** | number of compounding periods per year |  |

**2.** Christina’s car will be worth $14,250 in three years. What will the total cost of the car be

at the end of the loan?

What is the benefit of this type of financing? What is the cost of this type of financing?

**3.** Christina considers a different option. The dealership offers 0% down and 0% APR for two years. The car will be worth $17,629 in two years. What will the monthly payments be under these conditions? How much will the total cost of the car be if Christina takes this loan? Which loan should Christina take? Why?

**4.** Christina has an offer to lease the same car for three years at $349 per month. The lease has a balloon payment of $1,200 at the end of three years. What is the total cost of the lease?

**5.** What interest rate is Christina being charged for leasing the car?

|  |  |  |
| --- | --- | --- |
| **Variable** | **Definition of Variable** | **Value** |
| **N** | number of compounding periods between the time of investment and the time of retirement |  |
| **I%** | annual interest rate (as a percent) |  |
| **PV** | principal, or present value |  |
| **PMT** | amount of each regular payment |  |
| **FV** | future value, or value of the investment at maturity |  |
| **P/Y** | number of payments per year (usually the same as the number of compounding periods per year, ***C/Y***) |  |
| **C/Y** | number of compounding periods per year |  |

Should Christina take the lease? Why or why not?

**6.** The car manufacturer offers a lease-to-purchase option at 1.9% APR for three years. At the end of this option, Christina can keep the vehicle by paying the depreciated value or walk away for a fee of $150. What is the monthly payment of the lease-to-purchase option? What is the total cost of the purchase option if she walks away?

|  |  |  |
| --- | --- | --- |
| **Variable** | **Definition of Variable** | **Value** |
| **N** | number of compounding periods between the time of investment and the time of retirement |  |
| **I%** | annual interest rate (as a percent) |  |
| **PV** | principal, or present value |  |
| **PMT** | amount of each regular payment |  |
| **FV** | future value, or value of the investment at maturity |  |
| **P/Y** | number of payments per year (usually the same as the number of compounding periods per year, ***C/Y***) |  |
| **C/Y** | number of compounding periods per year |  |

**7. REFLECTION:** Which alternative should Christina choose: the loan, the lease, or the purchase option? Why?

**8.** Christina works for a law firm and makes $42,350 a year. Based on standard budgeting used in Student Activity Sheet 8 and using your choice in Question 7, can she afford the car? Explain your answer.

**9. EXTENSION:** Wanda wants to buy a new car for $34,650. The bank will give her a car loan for five years at 4.5% APR with $0 down payment. What will her monthly payment be?

|  |  |  |
| --- | --- | --- |
| **Variable** | **Definition of Variable** | **Value** |
| **N** | number of compounding periods between the time of investment and the time of retirement |  |
| **I%** | annual interest rate (as a percent) |  |
| **PV** | principal, or present value |  |
| **PMT** | amount of each regular payment |  |
| **FV** | future value, or value of the investment at maturity |  |
| **P/Y** | number of payments per year (usually the same as the number of compounding periods per year, ***C/Y***) |  |
| **C/Y** | number of compounding periods per year |  |

1. Wanda’s car will be worth $18,935 in five years. The manufacturer offers a lease-to-purchase option at 7% APR. At the end of the purchase option, Wanda can keep the vehicle by paying the depreciated value or walk away for a fee of $180. What will her monthly payment be?

|  |  |  |
| --- | --- | --- |
| **Variable** | **Definition of Variable** | **Value** |
| **N** | number of compounding periods between the time of investment and the time of retirement |  |
| **I%** | annual interest rate (as a percent) |  |
| **PV** | principal, or present value |  |
| **PMT** | amount of each regular payment |  |
| **FV** | future value, or value of the investment at maturity |  |
| **P/Y** | number of payments per year (usually the same as the number of compounding periods per year, ***C/Y***) |  |
| **C/Y** | number of compounding periods per year |  |

**b.** What is the total cost for the loan? What is the total cost for the purchase option if Wanda walks away for $180? Which alternative should Wanda choose: the loan or the purchase option? Why?