**Unit 3 - Financial Literacy**

**Simple Interest**

Whenever you borrow money, you pay a usage fee. That fee is called interest:

**Interest = the amount charged for the use of borrowed money**

The amount of interest you pay is based on three elements: the amount you borrow, the interest rate, and the length of time the money is borrowed for.

The terminology for these elements is as follows:

-Principle: the amount borrowed

Interest Rate: annual percentage of the principle that is charged as a fee

Term: length of time the money is borrowed.

When it is time to pay back the money, you are required to pay the principle plus the amount of interest that has accumulated. This is called simple interest and it is typically used for very short-term borrowing or investments. The formula is as follows:

**Interest = Principle \* rate \* time (I=Prt)**

Example: If you borrow $1000 for five years at 10% interest is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The total amount due at the end of five years is principle + interest:

A = P + I

A =

When you borrow money, you pay interest but when you invest money, you earn interest. An investment is really a case where you lend your money to someone else and they pay you interest such as a bank does. The same equations apply when calculating simple interest that is earned except now principle is the amount invested and interest is the amount earned.

**Examples:** The following triangle is useful when solving for other variables in the equation.



$P=\frac{I}{RT}$ $R=\frac{I}{PT}$ $T=\frac{I}{PR}$

1. How much interest does a $10 000 investment earn at 5.6% over 18 years? 18 months?
2. Susan borrows $8650 to buy a used car and is charged 4.5% interest. If the term of her borrowing is 5 years, how much interest does she pay in total?
3. Henry invests $5000 in a mutual fund with an annual interest of 7.5%. How long will it take him to double his money?
4. If Sheila paid $797.50 in interest on a 5 year loan of $5 800. What was the interest rate?
5. Dorothy loaned John $5000 at an interest rate of 6%. He repaid her $5750 to cover the principal and interest. How long did he borrow the money>

Assignment: Worksheet.

**COMPOUND INTEREST**

Compound interest is another type of interest. It is interest that is calculated on the principal plus and interest previously earned. For example, if you keep the interest earned in your account, with **compound interest** the new interest is calculated on the principal plus that interest. Therefore, you will earn more interest than with simple interest.

Compound interest can be calculated using the simple interest formula in a chart to show the value of the investment after each compounding period.

Example 1: Calculate the value of an investment of $5000 that earns 2.35% per year, compounded semi-annually, for 4 years. Use a table to show the value of the investment at the end of each compounding period.

Solution: Complete this chart by using the simple interest formula (*I=Prt*) to calculate the interest earned each period. To calculate the last column, add the principal and the interest earned in that year. This then becomes the value at the beginning of the next period.

For our purposes, the term that is used will always be in years. Compound interest can also be paid more than once a year. This is called the **compounding period**. The compounding period could be annually (once a year), semi-annually (twice a year) quarterly (4 times a year), monthly (12 times a year), weekly (52 times a year), or daily (365 times a year).

*P* =\_\_\_\_\_\_\_\_\_ *r* = \_\_\_\_\_ = \_\_\_\_\_ *t* = \_\_\_\_\_\_\_\_\_\_

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| **INTEREST TABLE** |
| *Interest period* | *Investment value at the beginning of the period* | *Interest earned ($)**I=Prt*  | *Investment value at the end of the period* |
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The value of the investment after 4 years is $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Instead of completing this complicated calculation, a formula is used to achieve the same result. The formula for calculating compound interest is:

***A = P × ( 1 + r ÷n )n×t***

where,

A = Compounded or Final amount (principal + interest )

P = Principal (amount of money that was originally borrowed or invested)

r = Rate (interest rate – in decimal form)

 Ex. 10% = 0.10

 5% = 0.05

t = Term (in years)

 Ex. 2 years = 2

n = Compounding period

 Annually = Monthly =

 Semi-annually = Weekly =

 Quarterly = Daily =

Example 1: What is the compounded amount if $5000 is deposited in an account for 2 years that pays 4.5% interest annually?

Solution: Assign the values to their correct spot, substitute and solve.

*A* = *P* = *r* = = *t* = *n* =

*A = P × ( 1 + r ÷n )n×t*

Example 2: Find the compounded amount if you were to put $400 in a bank account if the interest rate is 4.75% for 5 years and the interest is compounded weekly.

Solution: Assign the values to their correct spot, substitute and solve.

*A* = *P* = *r* = = *t* = *n* =

*A = P × ( 1 + r ÷n )n×t*

Because the compounded amount, A, is made up of the principal and the interest earned, ***A = P + I,*** the amount of interest earned can be calculated by first calculating A, and then subtracting the original principal from that amount.

***I = A – P*** Interest = Compounded Amount - Principal

Example 3: Margaret invested $2000 in an account with an interest rate of 8% for 3 years, compounded quarterly. How much interest does she earn?

Solution: Assign the values to their correct spot, substitute and solve for *A*. Subtract to find the interest.

*A* = *P* = *r* = = *t* = *n* =

*A = P × ( 1 + r ÷n )n×t*

Interest = A – P =

**COMPOUND INTEREST Practice problems**

1) Calculate the final amount of a deposit of $5000 invested at 3.1% per year, compounded annually for 5 years.

2) Calculate the final amount of a deposit of $650 invested at 4.75% per year, compounded monthly for 3 years.

3) Calculate the final amount of a deposit of $1000 invested at 7.25% per year, compounded semi-annually for 2 years.

4) Tabitha deposits $4275 into an investment account that offers 3.25% interest per year, compounded daily. How much will her investment be worth after 7 years?

5) Calculate how much **interest** you would earn on a deposit of $8500 at 2.75%, compounded annually, for a term of 4 years.

6) If Greg invested $500 for 5 years, compounded annually, at a rate of 6%, how much interest would he earn on his investment?

**the RULE OF 72**

There is an easy and quick way to estimate how long it will take to double your investment if it is compounded annually. It is called the **Rule of 72**. The approximate time, in years, that it will take to double your money is found by dividing 72 by the interest rate after dropping the percent sign. The amount of the investment has no bearing on this “rule”.

 Years to double investment = 72 ÷ (interest rate as a percent)

1) Use the Rule of 72 to estimate how long it would take the following investments to double in value. All are compounded annually.

a) $6000 invested at 4% b) $1500 invested at 9.35%

c) $2500 invested at 1.95% d) $350 invested at 5.5%

2) If you wanted to double your money in 10 years, at what interest rate would you need to invest your money?

3) How long would it take an investment of $1500 to grow to $3000 if the interest rate it is invested at is 6.5% per year, compounded annually? Round your answer to 1 decimal place.

4) An investment offers a rate of 2.80% interest per year, compounded monthly. Use the Rule of 72 to determine how long it will take for the value to double. Round your answer to the nearest whole year.

5) Use the compound interest formula and an investment of $500 to check your answer to the question above.

ASSIGNMENT: Worksheet

Quiz next class.

**Math 11 Unit 3 – Investing and Borrowing Money**

Assignment 1 – Compound Interest and the Rule of 72

1. Calculate the amount of ***simple*** interest earned and the final value for each of the following investments
2. Principal: $400.00 Rate: 1.25% per annum Term: 8 years
3. Principal: $750.00 Rate: 2.75% per annum Term: 5 years
4. Principal: $1000.00 Rate: 4.50% per annum Term: 10 years
5. Principal: $1200.00 Rate: 3.95% per annum Term: 9 years
6. Calculate the amount of ***compound*** interest earned and the final value for each of the following investments
7. Principal: $400.00 Rate: 1.25% per annum Term: 8 years
8. Principal: $750.00 Rate: 2.75% per annum Term: 5 years
9. Principal: $1000.00 Rate: 4.50% per annum Term: 10 years
10. Principal: $1200.00 Rate: 3.95% per annum Term: 9 years
11. Use the table to show how much a deposit of $1000.00, invested at 3.85% per annum, compounded semi-annually for 2 years, would be worth at the end of each compounding period

|  |
| --- |
| INTEREST TABLE |
| Interest period | Investment value at beginning of period | Interest earned ($I=Prt$) | Investment value at the end of the period |
|  |  |  |  |
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1. Tameka deposited $4000.00 into an investment account that offers 3.00% interest per annum, compounded daily.
2. How much will her investment be worth after 3 years?
3. How much will it be worth in 10 years?
4. An investment offers a rate of 2.80% per annum, compounded annually.
5. Use the Rule of 72 to determine about how long it will take for the value to double. Round your answer to the nearest whole year.
6. Use the compound interest formula and an investment of $1000.00 to check your answer to a). What is the value after that number of years?
7. John has a $1000.00 investment that offers an interest rate of 2.50% per annum, compounded monthly.
8. If he invests it for 5 years, how much will the investment be worth at the end of the term?
9. Approximately how long will it take for his investment to double in value?
10. Which is the better investment over 5 years:
	* An investment that offers a rate of 1.90% per annum, compounded annually; or
	* An investment that offers a rate of 1.75% per annum, compounded monthly/
11. Calculate the final value of an investment of $5000.00 over a term of 10 years and a rate of 2.60% at the following compounding periods:
12. Annual;
13. Quarterly;
14. Monthly; and

1. Daily.

**CREDIT CARDS**

![C:\Documents and Settings\Jan Malcolm\Local Settings\Temporary Internet Files\Content.IE5\81VZLR3O\MC900441461[1].png]()In the first part of this unit, we have looked at different ways of *earning* interest on investments. There is another side to this story – that is when you borrow money or take out a loan to buy something that you pay for later. This is called buying on **credit**. Credit is the type of loan where the borrower receives something of value, and agrees to pay for it later. The best example of people buying on credit is when they use a credit card.

Credit cards have many good features – they are very convenient, and they are a way to improve your credit rating is by using a credit card responsibly, and only charging what you can pay off in full each month. But if you do not pay the balance by the due date, the credit card company charges you interest. The rates for most investments recently are fairly low – mostly less than 4%. However, if you borrow money or use your credit card and do not pay it off each month, the **finance charges** – the total amount of interest paid to borrow that money – are much higher. While you may get as little as 1.5% on an investment, you may have to pay 19.5% or more on an unpaid credit card balance! You may think this is illegal, but it is not. When you agree to use a credit card, these rates are published on each statement. However, people don’t always read them carefully and can get into a lot of debt trouble using credit cards they can’t pay off each month.

Credit card companies require you to pay a minimum payment each time they issue a statement. This **minimum payment** is a percentage of the unpaid balance or a flat dollar amount, usually whichever is greater. Credit card companies are now required by law to print on monthly statements how long it will take to pay off a balance if no further purchases are made and if only the minimum payment is made each month. It can be a scary amount of time for a small balance! Here is an example.



Another way that credit card companies make money is by charging higher rates for cash advances. A **cash advance** is a withdrawal of cash from a bank or ATM machine charged to a credit card. The interest rate charged for a cash advance is usually higher than for purchases, and it is calculated from the day you withdraw the cash advance.

**CREDIT CARDS**

1) How much interest is due on an unpaid credit card balance of $1047.28 at a rate of 21.25% for 27 days?

2) How much interest is due on an unpaid credit card balance of $2111.67 at a rate of 18.5% for 5 months?

3) Adam has an unpaid credit card balance of $765.43 that charges an interest rate of 19.75%. If his payment was due on September 23, how much interest will he owe on October 14? Hint: September has 30 days.

4) Debbie has an unpaid credit card balance of $568.93. Her credit card company charges 24% per year, counting each day that an amount is owed. If she did not pay anything on July 10, her due date, how much does she owe on her next statement date, August 2? July has 31 days.

5) Stuart has an unpaid credit card balance of $268.67. What is his minimum payment if his credit card company charges an interest rate of 18.25%, and Stuart must pay 3% or $25, whichever is greater?

6) If Jamie took a cash advance of $259 on her credit card for 42 days and is charged an interest rate of 21.75%, how much interest will she be charged for that period?

7) Harvey used his credit card to make the following purchases during the month. He does not have a previous balance

|  |  |  |
| --- | --- | --- |
| *Date* | *Item* | *Amount* |
| July 3 | Oil Change | $107.42 |
| July 6 | Groceries | $139.88 |
| July 10 | Gas | $62.00 |
| July 15 | Groceries | $89.71 |
| July 19 | Dinner | $47.69 |
| July 22 | Plane ticket | $725.27 |

a) What is his balance due on his statement date of July 27?

b) If the minimum payment is 5% or $25.00 whichever is greater, what is Harvey’s minimum payment?

c) If Harvey only pays the minimum payment and doesn’t use his credit card between July 27 and August 27, how much will he owe on his statement on August 27?

Assignment: Worksheet

**Math 11 Unit 3 – Investing and Borrowing Money**

Assignment 2 – Credit Cards

1. Calculate the interest due on the following credit card balances
2. An unpaid balance of $2076.54 at a rate of 19.50% for 15 days;
3. An unpaid balance of $1007.48 at a rate of 21.50% for 38 days; and
4. An unpaid balance of $2019.64 at a rate of 18.50% for 18 months.
5. Marcia’s credit card company charges 24.00% per annum, counting each day that an amount is owed. Her only purchase was an item for $568.93. She did not pay on the due date, March 10. How much will she owe on the next statement date, April 2, if she doesn’t make any other purchases?
6. Harley used her credit card to make the following purchases during the month. She does not have to pay interest on purchases during the month, only on outstanding balances. Her credit card company charges 18.50% per annum.

|  |  |  |
| --- | --- | --- |
| Date | Item  | Amount |
| November 1 | Groceries | $124.32 |
| November 7 | Dress | $187.54 |
| November 12 | Dinner | $32.42 |
| November 16 | Groceries | $154.21 |
| November 21 | Gas | $54.24 |
| November 23 | Plane ticket | $654.32 |

1. What is her balance due on the statement date, November 28?
2. If the minimum payment is 5% of $10.00, whichever is greater, what is Harley’s minimum payment?
3. If she pays only the minimum and doesn’t use her card between then and the next statement date, how much will she owe on her December 28 statement?
4. Javier’s credit card charges 24.90% interest per annum. He used her credit card, which had no previous balance, to take out a cash advance of $550.00 on December 10. Interest is calculated starting on the date of withdrawal.
5. Javier’s next statement is dated December 21. For how many days is interest calculated for the balance on this statement?
6. How much will he owe on his December 21 statement?
7. What is the actual cost of the cash withdrawal, if he pays his bill in full on January 10?
8. Marie-Josée is charged 21.95% per annum on her credit card balances. She used her card, which had no previous balance, to make the following purchases:
* $28.95 for dinner;
* $45.39 for gas; and
* $106.15 for groceries.

These items appear on her statement dated October 29. By the due date, Marie-Josée paid the minimum payment (5% or $10.00, whichever is greater). On November 12, Marie-Josée made another purchase of $119.65 on her credit card. If she makes no other payments or purchases, how much will Marie-Josée owe on her next statement dated November 29?

**STORE PROMOTIONS**

![C:\Documents and Settings\Jan Malcolm\Local Settings\Temporary Internet Files\Content.IE5\1YRFGTOB\MP900442175[1].jpg]()Stores want your business! They want you to buy their products, especially big ticket items that cost a lot. So what do stores do to encourage you to buy their product? They advertise special deals like “*Buy Now! No Down Payment*” or “*Free Delivery*” or “*Make No Payments for One Year*” and others. A down payment is a partial payment sometimes required at the time of purchase to secure the purchase. The rest of the cost of the purchase is paid off over time, and usually at a high interest rate.

Sometimes stores will give you the option to choose between two (or more) different payment options for payment if you cannot afford to pay cash at the time of purchase. Be sure you understand all the details of any promotion or payment option before you commit to it.

**STORE PROMOTIONS**

1) Jessica is buying a new big screen TV priced at $1599.99. She can pay the cash price or take the sale promotion of “No Down Payment and 24 Easy Monthly Payments of just $95!” If Jessica chooses the Easy Monthly Payments, how much will she pay for the TV, and what interest rate is she paying?

2) Justin bought a new car. The cash price (including tax) was $32 456.75, but he is paying monthly installments of $675 for 60 months. What interest rate is he paying?

3) Considering interest rate only, which is the better option on a $495.80 purchase?

Option 1: 4 monthly payments of $140.00

Option 2: 6 monthly payments of $90.00

4) Valerie needs to buy a new living room set. Her payment options are:

Option 1: Pay cash $2945.00 plus 12% tax.

Option 2: Pay 15% down payment then 10 monthly payments of $300.00 (no tax)

Option 3: No down payment, and then 6 monthly payments of $555.00 (no tax)

How much does each option cost? Which payment plan offers the best deal?

Assignment: Worksheet

**Math 11 Unit 3 – Investing and Borrowing Money**

Assignment 3 – Store promotions

1. Sol is buying a new TV. The cash price is $1675.89, or he can take the store promotion: “24 easy monthly payments of $75!” If Sol chooses the store promotion, what annual rate of interest will he pay for the TV?
2. A store offers a bike for $689.98. You want to purchase it, but cannot pay cash. Your payment options are:

**Option 1:** 10% down payment then 6 monthly payments of $115.00.

**Option 2:** No down payment and 24 monthly payments of $35.00

**Option 3:** Pay using a cash advance on your credit card. You would be charged interest at an annual rate of 20.95%, and you expect that it will take you 20 days to pay the credit card balance.

Which payment plan offers the better deal?

1. Jacquie bought a new car. The cash price was $24 789.00, but she is paying in monthly installments of $450.00 for 60 months. What interest rate is she paying?
2. Calculate the interest due on the following credit card balances:
3. An unpaid balance of $2987.69 at a rate of 21.50% for 45 days; and
4. An unpaid balance of $1539.99 at a rate of 20.95% for 6 months.
5. Simona’s credit card company charges interest at a rate of 19.50% per annum. On her statement dated June 18, she owed $1630.45. She paid only the minimum (5% or $10.00, whichever is greater). How much will she owe on her next statement (July 18) if she does not use her credit card again before the statement date?
6. Vlad’s credit card charges 18.50% per annum interest. On his June 12 statement, he had a balance of $398.51. By the due date, he made the minimum payment (5% of $10.00, whichever is greater). On June 14, he made a purchase of $575.54.
7. If he makes no other purchases or payments, what will his balance be on his next statement, dated July 12?
8. On his July 12 statement, what will his minimum payment be?
9. George wants to buy a new living room set. His payment options are:

**Option 1:** Pay $2543.90 cash.

**Option 2:** Store payment plan of 6 monthly payments of $435.00

**Option 3:** Pay using a cash advance on his credit card. He would be charged interest at an annual rate of 22.75%, and he expects that is would take him 30 days to pay the credit card balance.

1. If he chooses Option 2, how much will he pay in interest?
2. If he chooses Option 3, how much will he pay for the living room set?
3. Consider interest rate only, which is the better option on a $859.40 purchase?

**Option 1:** 4 monthly payments of $220.00

**Option 2:** 6 monthly payments of $150.00

**BORROWING MONEY**

While it usually is a good idea to wait until you have saved up enough money to buy something, sometimes it makes sense to borrow money and then pay it back over time. For example, you might want to buy a vehicle so you can transport tools for your job. Or you might need to pay for some schooling or training like an apprenticeship to help you with your career. Perhaps the biggest purchase you will make in your life would be a house or condo. If you waited until you had saved enough money for that, you would probably never buy it!!

Borrowing money and paying it back according to the arrangements you have made also helps to build up your credit rating. This allows you to borrow more at a later date when you might want to make a bigger purchase – remember that condo

There are different ways and places to borrow money. Usually we think of a **loan** when we think of borrowing money. A loan is a fixed amount of money that you borrow all at once. It is paid back over a specified term and interest is included in what you pay back. This length of time required to pay the loan back is called the **amortization period**. You will usually sign an agreement with your bank or credit union to make this a contract.

Other ways to borrow money include a line of credit, overdraft protection, and payday loans. A bank **line of credit** is a preapproved loan that lets you borrow on as needed up to a certain limit. Interest is charged but only on the money you use and only when you use it. It is similar to a credit card.

**Overdraft protection** is an agreement with your financial institution that allows you to withdraw more money from your account than you have in it, up to an agreed limit. The bank will cover the extra you have taken out, but you must repay. Interest is charged and it is usually at a higher rate like credit cards. Just like a line of credit, you only get charged if you use this service.

Some loans are secured with **collateral**, an item of value promised by the borrower that will be surrendered if the loan is not paid. This often is a car or property. Whichever type of loan you take out, if you do not make your payments as agreed in your contract, you are said to be in **default**, and legal action can be taken against you.

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| --- |
| **PERSONAL LOAN CALCULATOR:****MONTHLY PAYMENT PER 1000.00 BORROWED** **(INTEREST COMPOUNDED MONTHLY)** |
| *Interest rate (%)* | *Term in years* |
|  | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** |
| 3.00 | 84.69 | 42.98 | 29.08 | 22.13 | 17.97 |
| 3.25 | 84.81 | 43.09 | 29.19 | 22.24 | 18.08 |
| 3.50 | 84.92 | 43.20 | 29.30 | 22.36 | 18.19 |
| 3.75 | 85.04 | 43.31 | 29.41 | 22.47 | 18.30 |
| 4.00 | 85.15 | 43.42 | 29.52 | 22.58 | 18.42 |
| 4.25 | 85.26 | 43.54 | 29.64 | 22.69 | 18.53 |
| 4.50 | 85.38 | 43.65 | 29.75 | 22.80 | 18.64 |
| 4.75 | 85.49 | 43.76 | 29.86 | 22.92 | 18.76 |
| 5.00 | 85.61 | 43.87 | 29.97 | 23.03 | 18.87 |
| 5.25 | 85.72 | 43.98 | 30.08 | 23.14 | 18.99 |
| 5.50 | 85.84 | 44.10 | 30.20 | 23.26 | 19.10 |
| 5.75 | 85.95 | 44.21 | 30.31 | 23.37 | 19.22 |
| 6.00 | 86.07 | 44.32 | 30.42 | 23.49 | 19.33 |
| 6.25 | 86.18 | 44.43 | 30.54 | 23.60 | 19.45 |
| 6.50 | 86.30 | 44.55 | 30.65 | 23.71 | 19.57 |
| 6.75 | 86.41 | 44.66 | 30.76 | 23.83 | 19.68 |
| 7.00 | 86.53 | 44.77 | 30.88 | 23.95 | 19.80 |
| 7.25 | 86.64 | 44.89 | 30.99 | 24.06 | 19.92 |
| 7.50 | 86.76 | 45.00 | 31.11 | 24.18 | 20.04 |
| 7.75 | 86.87 | 45.11 | 31.22 | 24.29 | 20.16 |
| 8.00 | 86.99 | 45.23 | 31.34 | 24.41 | 20.28 |
| 8.25 | 87.10 | 45.34 | 31.45 | 24.53 | 20.40 |
| 8.50 | 87.22 | 45.46 | 31.57 | 24.65 | 20.52 |
| 8.75 | 87.34 | 45.57 | 31.68 | 24.77 | 20.64 |
| 9.00 | 87.45 | 45.68 | 31.80 | 24.89 | 20.76 |
| 9.25 | 87.57 | 45.80 | 31.92 | 25.00 | 20.88 |
| 9.50 | 87.68 | 45.91 | 32.03 | 25.12 | 21.00 |
| 9.75 | 87.80 | 46.03 | 32.15 | 25.24 | 21.12 |
| 10.00 | 87.92 | 46.14 | 32.27 | 25.36 | 21.25 |

 **FIXED TERM LOANS**

1) Joe takes out a loan for $7800 at 4% interest for 5 years. What will his monthly payment be? Use the *Personal Loan Calculator* on p.25.

2) Marie is buying a new snowmobile that costs $11 500.00. She will take a loan from her bank at 4.75% for 4 years.

a) Calculate Marie’s monthly payment.

b) Calculate the total amount Marie will pay for the loan over the 4 years.

3) Tim wants to buy a used car that costs $3900.00. He can get a loan at 3.25% for 3 years from his bank.

a) What will his monthly payment be?

b) What is the total amount Tim will pay for the loan over the 3 years?

4) Alan wants to buy a customized mountain bike that costs $3500. He has saved $1200 toward the cost.

 a) How much will Alan need to borrow from the bank to buy his bike?

 b) Alan can get a loan at 5.5% for 2 years from his bank. What will his monthly payment be for this loan?

c) What is the total amount Alan will pay for the loan over the 2 years?

d) How much will Alan pay in total for his bike?

5) Bruce takes out a $7300 loan and is offered two choices for repayment.

 Option1: 5.75% per year for 3 years

 Option 2: 7.00% per year for 2 years

a) Calculate the monthly payment for each loan option.

b) What is the total cost for each loan option?

c) Which loan would you recommend Bruce choose? Explain your answer.

Assignment: Worksheet

**Math 11 Unit 3 – Investing and Borrowing Money**

Assignment 4 – Personal loans

1. Calculate the monthly payment, the total amount paid, and the finance charge for each of the following loans.
2. $3000.00 at 9.0% per annum for 2 years;
3. $2125.00 at 7.25% per annum for 3 years; and
4. $11 500.00 at 4.75% per annum for 4 years.
5. Adele wants to buy a used car that costs $2900.00. She has $1100.00 saved up for a down payment.
6. How much will Adele have to borrow to buy the car?
7. She can get a loan at 6.50% per annum with an amortization period of 2 years. What will be her monthly payment?
8. What will be the total amount that she pays for the loan?
9. How much will the car cost?
10. Calculate the monthly payment, the total amount paid and the finance charge for the following loans:
11. $2500.00 at 8.0% per annum for 3 years;
12. $10 000.00 at 6.25% per annum for 5 years; and
13. $1500.00 at 3.75% per annum for 2 years.
14. Jackson borrowed $5000.00 from the bank to buy a car. The loan has an annual interest rate of 7.00% and an amortization period of 2 years.
15. What is Jackson’s monthly payment?
16. Calculate the total amount he will pay over 2 years.
17. Calculate the finance charge on the loan.

**PAYDAY LOANS**

You have probably seen “stores” or TV commercials where you can borrow money without going to a bank of other financial institution. This type of short-term loan is often called a **payday loan** because the term is usually only until your next pay day. These are usually not a good idea as they charge very high rates of interest. Many people get into a lot of financial trouble thinking these loans can get actually get them out of trouble.

**PAYDAY LOANS**

1) Haylie borrowed $325.00 from a payday store, and 10 days later she paid back the loan and interest with a cheque for $365.50.

a) What was Haylie’s daily interest rate?

b) What was Haylie’s annual interest rate?

2) Brad borrowed $250.00 from a payday loan store. He paid back the loan and interest 9 days later. His annual rate of interest was 425%. How much interest did Brad pay?

3) Mike borrowed $725.00 from a payday loan store and agreed to repay it in 15 days at a daily interest rate of 1.67%. How much in total did Mike repay the store?

4) Gurpreet agreed to pay $527.50 to a payday company that gave him a loan of $485.00 at 1.10% per day. How many days did he have the money?

Assignment: Worksheet

Quiz next class

Chapter Test: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Math 11 Unit 3 – Investing and Borrowing Money**

Assignment 4 – Payday Loans

1. Barou borrowed $250.00 from a payday loan company and had to repay $275.00 in 15 days. Calculate the annual interest rate.
2. Hayden borrowed $400.00 and paid back $415.00 in 10 days.
3. What was the annual interest rate?
4. What was the daily interest rate?
5. Chantal borrowed $200.00 from a payday loan store. She paid back the loan plus interest 7 days later. The interest rate was 395% per annum. How much interest did she pay?
6. Arleta borrowed $500.00 for 25 days at 1.12% per day. How much did she have to repay?
7. Helen agreed to pay $781.50 to a company that lent her $750.00 at 1.05% per day. How many days did she have the money?
8. Hans borrowed $1000.00 for 60 days at a rate of 0.50% per day.
9. How much will he have to repay?
10. What is the annual interest rate?

1. Shey needed $850.00 cash to pay an emergency vet bill. He went to a payday loan store and agreed to pay $950.00 on payday, which is 12 days away.
2. What is the daily interest rate for the loan?
3. What is the annual interest rate for the loan?
4. Carmen borrowed $250.00 from a payday loan store and agreed to repay it in 18 days, at a rate of 1.17%. How much did she have to repay?
5. Manon is buying a new TV. The TV costs $3499.99 in the store. She has only $1000.00 saved up to use as a down payment. She has the following payment options.

**Option 1:** Get a loan from the bank at 6.50% per annum over 2 years, and pay cash.

**Option 2:** Take the store payment plan of $50.00 down payment and 12 monthly payments of $325.00

**Option 3:** Take out a payday loan. She would be required to pay 1.12% daily interest, and would have to repay the loan within 30 days.

1. With Option 1, how much would Manon pay per month?
2. Calculate the total cost of each of Manon’s payment options. Which option should she choose?