

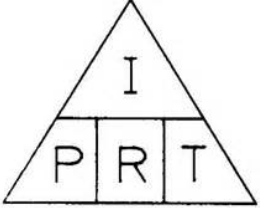
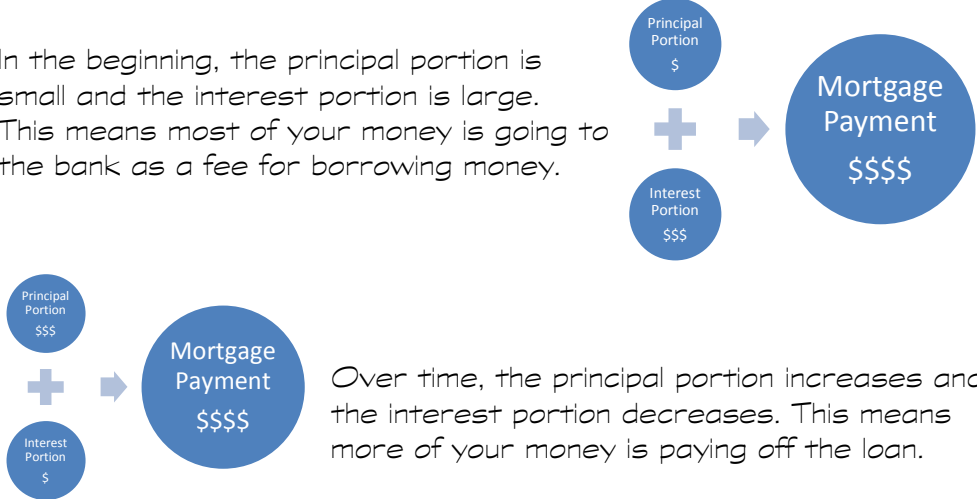
Lesson 3: Mortgages

In this lesson you will take a look at mortgages and the monthly payments they require. More detailed calculations will be examined in Lesson 4.

While home ownership can be a rewarding experience, it is important to ensure that you buy a home that falls within your financial limits. The question of affordability will be discussed later, but the monthly mortgage payment will be one of your largest ongoing costs.

Mortgage is a loan secured by property.

The fundamental components of a mortgage are:

<p>Principal</p>	<p>The amount of money you borrow.</p> <p>Initially the difference between the selling price of the property and the down payment.</p> <p>Principal = Selling Price — Down Payment</p>
<p>Interest</p>	<p>The amount you will pay for borrowing money.</p> <p>Interest (monthly) = Principal x Rate x Time</p> <p>*To calculate Total Interest you need to create a mortgage table/chart.</p> 
<p>Mortgage Payments</p>	<p>A regular installment, usually monthly, made up of principal and interest.</p> <p>In the beginning, the principal portion is small and the interest portion is large. This means most of your money is going to the bank as a fee for borrowing money.</p>  <p>Over time, the principal portion increases and the interest portion decreases. This means more of your money is paying off the loan.</p> <p>Mortgage Payment = Principal Portion + Interest Portion</p>

Amortization Period

The actual number of years it will take to repay the entire mortgage; generally, a period anywhere between 15 and 25 years.


Amortization Period of Mortgage Loan When Paid Monthly (Blended payment of principal and interest per \$1000 of loan)					
Interest Rate	5 years	10 years	15 years	20 years	25 years
4.00%	\$18.40	\$10.11	\$7.38	\$6.04	\$5.26
4.25%	18.51	10.23	7.50	6.17	5.40
4.50%	18.62	10.34	7.63	6.30	5.53
4.75%	18.74	10.46	7.75	6.44	5.67
5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10

Use an Amortization Table to find the mortgage payment per \$1000.00

Term

The length of time that a specific mortgage agreement covers, generally being between six months and 10 years.

When the term matures or expires, the balance of the mortgage is generally renegotiated for another term, at prevailing rates and conditions in effect at that time.



Equity

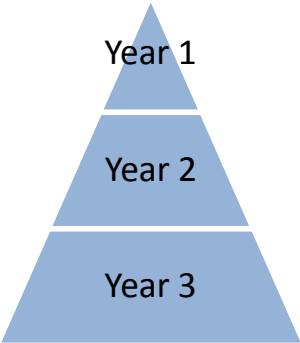
The value of the property, you outright own above and beyond any loans/mortgage.

The Down Payment is representative of the equity in the beginning. Your mortgage payments will contribute regularly to building your equity.

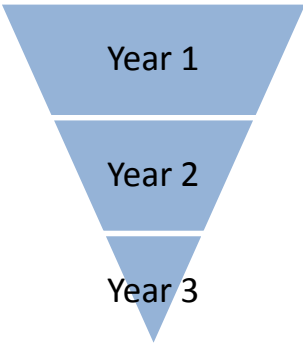
Equity = Down Payment + Mortgage Payment (Principal Portion only)

Loan Balance = Original Loan — Mortgage Payment (Principal Portion only)

Equity



Mortgage (Loan)



CONVENTIONAL MORTGAGE

If you have at least 25% of the purchase price (or appraised value if this is lower than the purchase price) as a down payment, you can apply for a conventional mortgage.

Some lenders will require CMHC insurance because of the property's location or type, even though you have 25% or more equity.



CONVENTIONAL LOAN

HIGH-RATIO MORTGAGE

If you have between 5% and 25% of the purchase price as your down payment, you can apply for a high-ratio mortgage. Usually these have to be insured through CMHC (Canada Mortgage and Housing Corporation) or GE (GE Capital). These are mortgage insurance companies.

Purchasing insurance is a common way of qualifying for a mortgage when you have less than 25% equity. The insurance premium is charged only once (per mortgage), when the mortgage funds are advanced. You can pay the premium yourself, but most people choose to add the funds on top of the mortgage.

Negotiating a Mortgage

There is no such thing as "just a mortgage." There are numerous types of mortgages and payment options designed to meet the unique requirements of every homeowner.

Mortgages are available on a closed, open, or convertible basis, and at fixed, capped, or variable rates. Your choices will ultimately reflect your short-term plans, your desire for longer-term security, and whether you believe interest rates are going up or down.

CLOSED MORTGAGES

Closed mortgages are usually the better choice for buyers who suspect that interest rates may be on the rise and for those who are not planning to move in the short term. Closed mortgages are generally available in a full range of terms.

ADVANTAGE: interest rates are generally lower than for open mortgages and first-time buyers are often more secure knowing exactly how much their mortgage payments will be over a set period of time.

DISADVANTAGE: you must pay compensation, or *breakage costs*, to the mortgage lender in order to renegotiate the interest rate or pay off the balance prior to the end of the term.

OPEN MORTGAGES

Open mortgages usually have short terms of six months or one year.

ADVANTAGE: allows you to pay off part or the entire mortgage at any time without penalties.

DISADVANTAGE: the interest rates are higher than those for closed mortgages with similar terms.

CONVERTIBLE MORTGAGE

These are fixed rate mortgages for terms of 6 months or 1 year. Not all lending institutions offer convertible mortgages. With a convertible rate mortgage you can lock into a longer term during the current term of your mortgage without penalty - but only with the same lender. For example, if after a couple of months you hear that interest rates are going to increase, you may change to a longer term mortgage such as the 5 year term.

CAPPED RATE MORTGAGES

These are variable rate mortgages that the lending institution has rate 'capped'.

ADVANTAGE: even though the rate will fluctuate, the institution guarantees that you will not pay more than a certain interest rate, set by them.

DISADVANTAGES: these mortgages often have a penalty for early 'payment in full' and are often not portable (i.e. cannot change banks).



FIXED RATE MORTGAGES

Fixed rate mortgages are the most popular type of mortgage. You benefit from the security of locking in your mortgage interest rate, for lengths of time ranging from 3 months up to 25 years. The rates are slightly lower than for an open mortgage for the same term.

HOW IT WORKS:

- If you think interest rates could rise, you may want to choose a longer term, such as a 5 or 10 year term.
- If you think that rates are going lower, you may want to gamble on a shorter length of time.

Payments are set in advance for the term, providing buyers with the security of knowing precisely how much their payment will be throughout the entire term. Many people like this because it is easier to budget for a constant loan payment.

VARIABLE RATE MORTGAGES/ ADJUSTABLE RATE MORTGAGES

At the start of a variable rate mortgage, the lender will calculate a mortgage payment that includes principal & interest.

For the term of the mortgage your payments usually do not change. However, as the rate changes so will your mortgage rate.

HOW IT WORKS:

- If interest rates are dropping, less of each payment will go toward interest and more will go toward principal.
- If interest rates rise, more of your payment will be interest and less money will be reducing your principal.

Read more at <http://www.mortgage-made-easy.com/types.htm>

Complete Assignment3A

Looking at the Amortization Period of Mortgage Loan Table



You will always owe more to the bank than the initial amount you borrowed. This is because there is a cost to borrow the money (called interest).

The INTEREST RATE and the LENGTH OF THE MORTGAGE will both affect your **actual** total cost of your home.



- What happens to the dollar amounts inside the table as the interest rate increases?



- What happens to the dollar amounts inside the table as the length of time increases?

The dollar values **inside the table** represent:

the amount you pay per month for every \$1000 you borrow.

This repays the amount you borrow, as well as, the interest you owe.

Amortization Period of Mortgage Loan When Paid Monthly (Blended payment of principal and interest per \$1000 of loan)					
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5.00%	18.85	10.58	7.88	6.57	5.82
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FINDING MONTHLY MORTGAGE AND TOTAL MORTGAGE COSTS

EXAMPLE 1:

If you were to mortgage/borrow exactly \$1000 at 4% over 25 years, then...

- Using the table, locate 4% and 25 years. What dollar amount do you find?
\$5.26/month
- This is the amount you owe every month for 25 years. What is the total amount you will have paid at the end of the 25 years?
\$5.26/month x 12 months x 25 years = \$1578
In the end, the **actual** total you pay would be \$1578.
- What does this mean?
At the end of the 25 years, you will have paid back the \$1000 plus **\$578 interest**.
(In other words, the cost of borrowing \$1000 is \$578.)

EXAMPLE 2:

In the case of a mortgage, the loan amount is usually in the hundreds of thousands of dollars. So using the numbers above, if you borrowed \$200 000 (instead of just \$1 000) you would owe 200 times as much!

$$\begin{aligned} \$200\ 000 &\text{ is } 200 \text{ thousands.} \\ \$5.26/\text{month} \times 200 &= \$1052/\text{month} \end{aligned}$$

Over the total time, the total cost of the mortgage would be:

$$\begin{aligned} \$1052/\text{month} \times 12 \text{ months} \times 25 \text{ years} &= \$315\ 600. \\ \text{At the end of the 25 years, the } \mathbf{actual} \text{ total you pay} &\text{ would be } \$315\ 600. \\ \text{(In other words, the cost of borrowing } \$200\ 000 &\text{ is } \$115\ 600!) \end{aligned}$$



Would you rather pay \$18.40/month for 5 years or \$5.26/month for 25 years?

Practice Question:

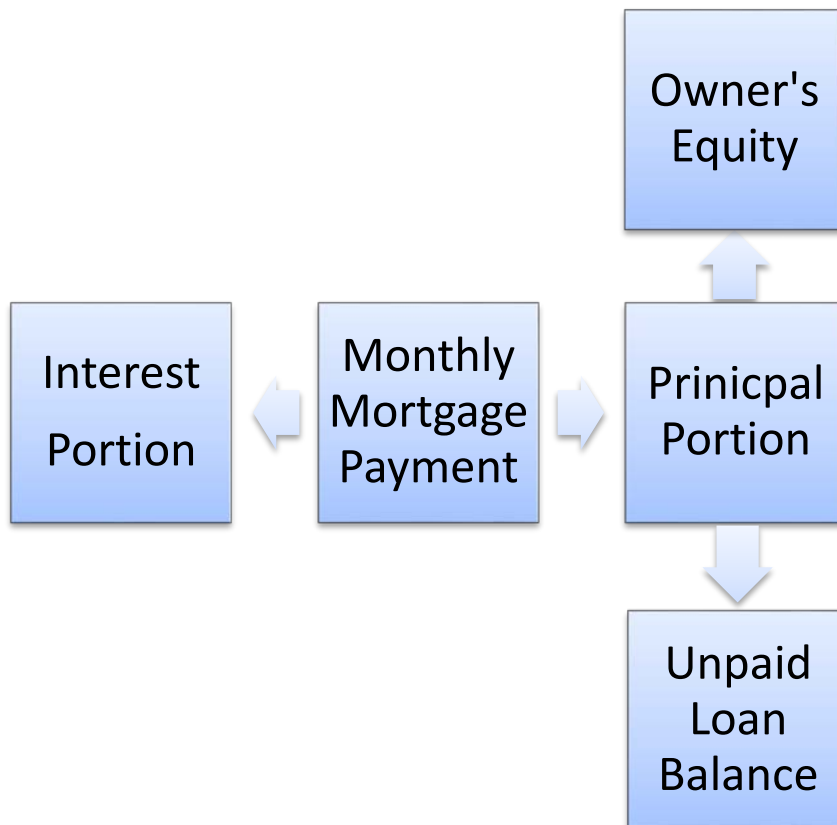
You take out a mortgage of \$75,000.00 from the credit union for 25 years at a rate of 4.75%.



- a) Find the monthly payment.
- b) Find the total amount you pay at the end of the 25 years.

WHAT DOES OUR MONTHLY MORTGAGE PAYMENT TELL US?

After we find the monthly mortgage payment, we will be able to find out how much we pay for interest and principal. We will also be able to find the unpaid balance and the owner's equity.



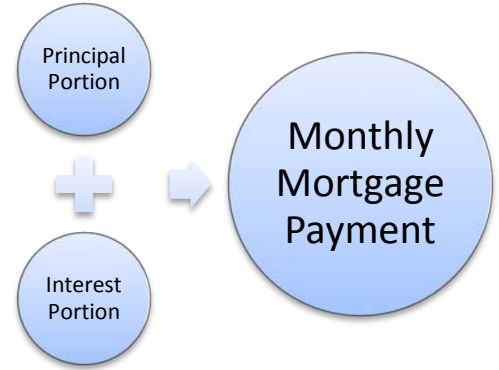
FINDING PRINCIPAL PORTION AND INTEREST PORTION

EXAMPLE 3:

The total mortgage payment per month is \$361.80. The interest portion is \$200.00. Find the portion paid toward the principal.

Solution

Monthly mortgage payment = interest portion + principal portion
 $\$361.80 - \$200.00 = \$161.80$ goes toward paying down the mortgage loan.



Suppose instead, we knew the mortgage payment was \$512.65 and the principal portion was \$112.65. How would we determine the interest portion?



CALCULATING INTEREST PORTION

EXAMPLE 4:

You owe \$45 000 on your mortgage loan. Your monthly mortgage payment is \$379.35. The interest rate is 8.25%. Find the interest portion for the month.

Solution

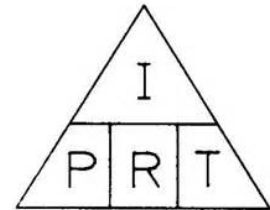
We find interest for the month on \$45 000 using $I = Prt$

I = we need to find

P = the amount owing on the mortgage loan = \$45 000

r = rate (written as a decimal, not as a %) = 0.0825

t = time (in years, so 1 month is $\frac{1}{12}$ of a year) = $\frac{1}{12}$ (or divide by 12)



$\$45\ 000 \times 0.0825 \div 12 = \309.38 is the interest portion for the month

Why are these two numbers not the same?



Mortgage Example - Unpaid Balance and Owners Equity

The unpaid balance last month was \$23 472. The owner's equity last month was \$18 785. The principal paid this month is \$75.68.

Calculate the new unpaid balance and the new owner's equity.

Solution

New Unpaid Loan Balance = Past Unpaid Loan Balance - Principal
 $\$23,472.00 - \$75.68 = \$23,396.32$ is the New Unpaid Loan Balance



The Unpaid Loan Balance **decreased**. Is this what you expected would happen?

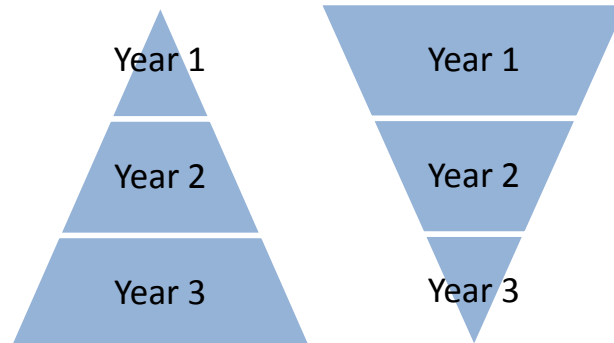
New Equity Balance = Past Equity Balance + Principal
 $\$18,785.00 + \$75.68 = \$18,860.68$ is the New Owner's Equity



The Owner's Equity Balance **increased**. Is this what you expected would happen?

Which of the following diagrams represents the trend of the Unpaid Loan Balance?

Which one represents the trend of the Owner's Equity Balance?



Example 1:

Jack Palmer purchases a home for \$120 000. He makes a down payment of \$40 000 and takes out a fixed-rate mortgage at 4.5% for the balance of the purchase price. The mortgage is to be amortized over 20 years. Determine Jack's monthly mortgage payment.



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4.00%	\$18.40	\$10.11	\$7.38	\$6.04	\$5.26
4.25%	18.51	10.23	7.50	6.17	5.40
4.50%	18.62	10.34	7.63	6.30	5.53
4.75%	18.74	10.46	7.75	6.44	5.67

Example 2:

Calculate the amount of interest Jack pays during the 20-year amortization period.



Example 3:

a) Find the interest portion for Jack's first month mortgage repayment.



b) Explain where the remaining amount of his monthly mortgage payment goes.

Complete Assignment 3B

Assignment 3A

Number the following terms based on the relationship in the diagrams provided:

<p>_____ Principal (Loan)</p> <p>_____ Selling Price</p> <p>_____ Down Payment</p>	
<p>_____ Interest Amount \$</p> <p>_____ Interest Rate %</p> <p>_____ Time (years)</p> <p>_____ Principal Amount \$</p>	
<p>_____ Interest Portion</p> <p>_____ Monthly Mortgage Payment</p> <p>_____ Principal Portion</p>	
<p>Replace each box with either a + or -</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Old Unpaid Loan Balance</p> <div style="border: 1px solid gray; width: 40px; height: 40px; margin: 0 auto;"></div> </div> <div style="text-align: center;"> <p>Principal Portion</p> <div style="border: 1px solid gray; width: 40px; height: 40px; margin: 0 auto;"></div> </div> <div style="text-align: center;"> <p>=</p> </div> <div style="text-align: center;"> <p>New Unpaid Loan Balance</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Past Equity Balance</p> <div style="border: 1px solid gray; width: 40px; height: 40px; margin: 0 auto;"></div> </div> <div style="text-align: center;"> <p>Principal Portion</p> <div style="border: 1px solid gray; width: 40px; height: 40px; margin: 0 auto;"></div> </div> <div style="text-align: center;"> <p>=</p> </div> <div style="text-align: center;"> <p>New Equity Balance</p> </div> </div>

When financing a mortgage loan of 4.5% for 15 years, you will find the amount of \$7.63 in the table below.

Show what you understand about mortgage loan repayment by answering the following multiple choice questions (circle your choice):

Amortization Period of Mortgage Loan When Paid Monthly (Blended payment of principal and interest per \$1000 of loan)					
Interest Rate	5 years	10 years	15 years	20 years	25 years
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4.50%	18.62	10.34	7.63	6.30	5.53
4.75%	18.74	10.46	7.75	6.44	5.67
5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10

1. The amount \$7.63 means:
 - a) The lender (person borrowing) owes the bank \$7.63.
 - b) The lender owes the bank \$7.63 every month for 15 years.
 - c) The bank charges the lender \$7.63 for each year they borrow.
 - d) The bank charges the lender \$7.63 for every \$1000 they borrowed.

2. The mortgage repayment must be paid:
 - a) Every week for 15 years.
 - b) Every month for 15 years.
 - c) Every year for 15 years.
 - d) Every month until the loan is paid off.

3. Once we find \$7.63 in the table, we calculate:
 - a) The monthly mortgage payment.
 - b) The monthly interest portion.
 - c) The monthly principal portion.
 - d) The annual mortgage payment.

4. With a mortgage loan of \$200 000, the mortgage repayment amount is:
 - a) \$763
 - b) \$1526
 - c) \$114.45
 - d) \$7.63

Name: _____

Assignment 3B

1. Arlin takes out a mortgage of \$160 000 from the bank for 20 years at 4.75%. Determine her monthly mortgage payment.

2. You take out a mortgage of \$150 000 from the bank for 25 years at 4.25%. Calculate the monthly mortgage payment.

3. Tom buys a house and borrows \$75 000 over a period of 15 years at a rate of 5.5%. Find his monthly mortgage payment.

Amortization Period of Mortgage Loan When Paid Monthly (Blended payment of principal and interest per \$1000 of loan)					
Interest Rate	5 years	10 years	15 years	20 years	25 years
4.00%	\$18.40	\$10.11	\$7.38	\$6.04	\$5.26
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5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10

4. Sam borrows \$240,000 at 8.75%. Determine the interest portion will he pay in the first month.

5. You owe \$95 000 at 9.75%. Calculate the interest portion will you pay in this month.

6. Jane takes out a 25-year mortgage for \$320 000 at 5.25%. Determine the interest would she pay over the life of the loan.

Amortization Period of Mortgage Loan When Paid Monthly (Blended payment of principal and interest per \$1000 of loan)					
Interest Rate	5 years	10 years	15 years	20 years	25 years
4.00%	\$18.40	\$10.11	\$7.38	\$6.04	\$5.26
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4.75%	18.74	10.46	7.75	6.44	5.67
5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10

7. You pay \$675.75 per month for your mortgage and the interest portion you pay this month is \$602.08. Determine the principal portion you have paid.
8. Ellen pays \$453.00 per month on her mortgage. This month \$337.50 goes to the interest portion. Calculate the principal portion she will have paid this month.
9. The unpaid loan balance on Juan's mortgage was \$43 724 and the owner's equity balance was \$15 587. The monthly mortgage payment principal portion for this month is \$68.75.
- a) Determine the new unpaid loan balance.
- b) Determine the new owner's equity balance.
10. Sam and Laura's monthly mortgage payment is \$532.31. After their March payment, the unpaid balance is \$51 284.62 and the owner's equity is \$25 634.10. From the April payment, \$404.44 is the interest portion.
- a) Determine the new unpaid loan balance at the end of April.
- b) Determine the new owner's equity balance at the end of April.
11. Explain why you pay less interest in the second month of a mortgage than in the first month.