

How Mortgage Loans Work

Excluding property taxes and insurance, a traditional fixed-rate mortgage payment consist of two parts: (1) interest on the loan and (2) payment towards the principal, or unpaid balance of the loan.

Many people are surprised to learn, however, that the amount you pay towards interest and principal varies dramatically over time. This is because mortgage loans work in such a way that the early payments are primarily in interest, and the later payments are primarily towards the principal.

In the beginning... you pay interest

To help calculate monthly payments for loans based on different interest rates, lenders long ago developed what are known as “amortization tables.” These tables also make it fairly easy to calculate how much money of each payment is interest, and how much goes towards the principal balance.

For example, let’s calculate the principle and interest for the very first monthly payment of a 30-year, \$100,000 mortgage loan at 7.5 percent interest. According to the amortization tables, the monthly payment on this loan is fixed at \$699.21.

The first step is to calculate the annual interest by multiplying $\$100,000 \times .075$ (7.5 %). This equals \$7,500, which we then divide by 12 (for the number of months in a year), which equals \$625.

If you subtract \$625 from the monthly payment of \$699.21, we see that:

- \$625 of the first payment is interest
- \$74.21 of the first payment goes towards the principal
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Next, if we subtract \$74.21 (the first principal payment) from the \$100,000 of the loan, we come up with a new unpaid principal balance of \$99,925.79. To determine the next month’s principal and interest payments, we just repeat the steps already described.

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Thus, we now multiply the new principal balance (99,925.79) times the interest rate (7.5%) to get an annual interest payment of \$7,494.43. Divided by 12, this equals \$624.54. So during the second month's payment:

- \$624.54 is interest
- \$74.67 goes towards the principal.

Note: In Canada, payments are compounded semi-annually instead of monthly.

Equity

As you can see from the above example, even though you pay a lot of interest up front, you're also slowly paying down the overall debt. This is known as building equity. Thus, even if you sell a house before the loan is paid in full, you only have to pay off the unpaid principal balance—the difference between the sales price and the unpaid principle is your equity. In order to build equity faster—as well as save money on interest payments—some homeowners choose loans with faster repayment schedules (such as a 15-year loan).

Time versus savings

To help illustrate how this works, consider our previous example of a \$100,000 loan at 7.5 percent interest. The monthly payment is around \$700, which over 30 years adds up to \$252,000. In other words, over the life of the loan you would pay \$152,000 just in interest. With the aggressive repayment schedule of a 15-year loan, however, the monthly payment jumps to \$927—for a total of \$166,860 over the life of the loan. Obviously, the monthly payments are more than they would be for a 30-year mortgage, but over the life of the loan you would save more than \$85,000 in interest.

Bear in mind that shorter term loans are not the right answer for everyone, so make sure to ask your lender or real estate agent about what loan makes the best sense for your individual situation.

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