

## TIME AND VALUE OF MONEY FUNCTIONS (TVM)

They always contain six factors. If you know five of them Excel will calculate the last one. The five functions are PMT, PV, FV, RATE, NPER. The six main factors are as follows

Factor	Full name	Comments
PMT	Payment	What the payment will be at each time interval for the duration of the agreement. Monthly, Quarterly or Annually
PV	Present Value	The starting amount of the loan or investment. A house loan might be \$500,000 and an investment account might be zero if you are just starting.
FV	Future Value	<p>What the value will be at the end of the agreement. For a loan this is typically the end of the amortization period not the term of the loan. In most personal applications this is typically zero and can be left blank in the Excel equation. Many business loan might be for a short period, say 3 years, and they have no intention of paying off the loan but instead to pay it down to a certain level. For example the loan might start at \$500,000 and the loan needs to be reduced to \$300,000 in 3 years.</p> <p>In an investment account you might start at zero and say you hope to have one million dollars in your account in 35 years. How much will you need to invest and at what rate to achieve your goals? TVM will tell you this</p>
RATE	Interest Rate	This is always an annual rate so if you are making monthly payments you will need to divide by 12 or you will be paying loan shark rates
NPER	Number of Payments	This is the total number of payments. If the loan is for 15 years be sure to take the duration and multiply by 12 to get the correct number of payments
TYPE	Type	<p>This indicates if the payment is made at the beginning or the end of the period. A loan payment is typically made at the end of the month. This is the default and so you can leave this field blank if you wish.</p> <p>If you are making an investment, then of course the payment needs to be made at the beginning of the month.</p> <p>The tricky one is a lease. For example, a car lease feels like the same as a car loan. The difference is that the lease payment is always made at the beginning of the month while a car loan is made at the end of the month.</p> <p>In either the lease or investment option you must put a "1" in this field</p> <p>This is the only field you cannot calculate for.</p>