

Till Debt Due Us Part vs. 101

Created by Mark Ira Lefkowitz
mark@thelemonadegame.com



Learn how to get out of Debt
using Amortization



Master the next games and become a skillful
Borrower, Equity Builder, & Investor



Operational Definitions

AMORTIZATION means to kill off your loan. Think of the English root “MOR” as in mortuary, moratorium, morgue, or morbid all relating to death. A mortgage is a way to kill off the promise of the signed writing of a loan/lien. In Latin, Spanish or Portuguese think of the verb Morir to die. Simply put, *Amortization* is the process of periodic “killing off” a loan.

SP or sales price is simply the price you pay for something. If you are going to finance, usually the lender will require a down-payment to reduce their liability and to demonstrate that you have skin in the game. Nevertheless, the lender needs to know the final sales price and what it includes to establish the fair market value of the asset.

DP is your down-payment and depending on what you purchase it may vary. For example to purchase a car the lender may require a down-payment of 20%. This may also affect the interest rate depending on the lender risk and the type of asset you are purchasing.

PV is the balance of the purchase price and means the Present Value or the loan that you are borrowing. For example if you purchase something for a (SP) \$10,000.00 with a (DP) down-payment of \$2,000.00 then the PV present value of the loan or the balance due and owing is (PV) \$8,000.00 ((Often the PV to SP is a metric known as loan to value ratio or the LTV ratio))

FV is the future value of the loan or the payoff amount at any given time. For example if you borrow \$8,000.00 and make periodic payments how much will you owe the lender after 6 months, or a year? If it is a long term 15, 20 or 30 year mortgage what is your payoff after a year or more? If you want to sell or flip and the property value increased what will be the future Equity?

APR is the annual percentage rate of the interest you need to pay to the lender. APR interest is expressed in yearly or annual costs or the fee that you are being charged for the loan. There is a cost to borrowing money and your credit worthiness or credit score as well as amount you are borrowing and the payment ratio to your income will affect this rate greatly!

INT or IR is the interest rate for the period you are borrowing (and always label it as such). For example if you payments and installments are monthly, then the APR from above will be divided by 12. Lets illuminate this... If your APR is 12% then your periodic interest rate is 1% per month. If your credit card balance has an APR of 24% and you pay monthly than your periodic interest INT/IR is 2% *per month* on the outstanding balance.

PMT are Payments or the amount you pay per period. Sometimes the payments or installments are fixed and the same amount each time. In other cases they may vary or you may decide to pay extra principal or round up your payment. Further, to expedite the reduction in principal balance (I call this chunking down the loan) you may add to the PMT several dollars per period.

N is always time. Time is one of the most important factors in determining the amount of the PMT. Thus the amount of the payment will determine the speed of the amortization of the loan. Moreover, time affects the future value of the loan at any given moment in time. This goes much deeper and will be a future specialized class utilizing a t-bar chart for compounding, rates of return (ROI) (ROE) (ROA) (IRR) (NPV) (Cash on Cash) and much more.

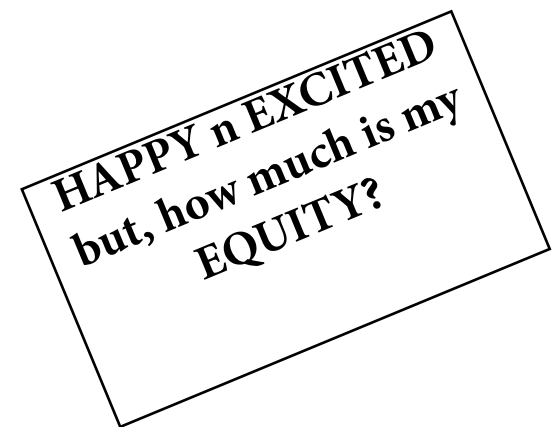
TVM the time value of money! The most important lesson I received in financial literacy was taught to me by Robert Ward of CCIM fame in 1981. It was”how many dollars in and WHEN...How many dollars out and WHEN” The When being incredibly important! It took me much time and several mistakes to really master this (future dollars are worth much less than current dollars.) More on the critical “and WHEN” in a TVM future game.

Fees and interest accrual vary and may begin at the time the credit is issued. While generally loan payments start 30 days after the loan is made this is not always the case! For example credit card charges may commence at the time of the purchase.

Prorations are charges made on a daily basis because transactions may fall in the middle or on an odd day of the month (called per diem rate) and many times the monthly interest will be further divided by 30 to create a daily interest rate.

Many times other fees may be added onto the balance or charged a different rate such as cash advances on a credit card or points charged by a lender to increase their effective yield. Points are generally an extra fee/expense based on a percentage of the loan being made and credited to the lender pockets.

The value of the asset is very important to the lender in establishing interest rates. For example credit card charges for travel, apparel, and food have no value or collateral value for the lender hence 24% APR. Automobiles have some value but generally depreciate and have limited asset values hence 12% APR. REAL ESTATE with a strong down-payment and insurable, is generally much safer with strong collateral. Hence APR rates currently are about 5-8%



In this Game you decide to purchase a a vehicle for yourself.

After shopping and checking out the latest nice cars and the bluebook for comparison, you select a gorgeous SUV that the dealer agrees to sell for a sales price (**SP**) of **\$25,000.00** including tax, registration, and extended warranty.

SP=_____

The bank requires a downpayment (**DP**) of twenty percent of the Sales Price (**SP**).
How much is your downpayment?

DP=_____

The balance of the purchase price is borrowed from the bank and the amount of the loan is called the (**PV**) or the present value of the loan on day one.
Subtract the DP from your SP

PV=_____

The Loan Terms are **12%** annual interest (**APR**)

APR=_____

What is the **monthly** interest rate (**IR**) Divide the APR by 12

IR=_____

The terms are equal monthly paments of \$445.00 for 5 years called PMT

PMT=_____

How much interest will you owe the bank at the end of the first month? Multiply the PV by the IR or in this case 1% times \$20,000.00 = **interest due and owing**

How much principal credit is applied to the balance if your PMT was \$445.00
subtract the interest due and owing paid from the PMT

Apply the principal reduction credit to the PV This is the new declining balance and FV (at the end of the month if the loan is not paid then..this will transfer to the PV beginning the 2nd month and the process repeated)

FV= _____

What was the Interest due the lender at EOM2

Interest

EOM2= _____

What was the total interest paid for 1 year (And \$\$\$ lost 4ever)

What is the FV and loan payoff at the end of the 12th month

EOM12=

CAR LOAN, 1 year amortizing table

SP = SALES PRICE

DP = DOWN PAYMENT

PV = BALANCE OWING or P_{resent} V_{alue} of the car loan or balance due

APR = ANNUAL INTEREST (written as Annual Percentage Rate)

IR = INTEREST RATE per cycle (example monthly payments is the APR divided by 12)

N = AMORTIZATION (TIME, CYCLE LENGTH, & TERMS of the loan)

PMT Amount = PAYMENT PER PERIOD depending on length of Amortization

FV = FUTURE VALUE OR Amount OWING AT ANY PARTICULAR TIME Period

Time	PV BALANCE of Loan \$\$\$ owed	APR annual % rate	IR interest per cycle	PMT Payment cash flow out CF0	Interest \$\$\$ owed to LENDER	Principal Reduction Amount	FV new balance owing lender = future value
START begin month BOM 1				<0>	0	0	
End Of Month EOM 1							*
	note the prior month FV becomes the new PV & begins the next month						
EOM 2	*						
EOM 3							
EOM 4							
EOM 5							
EOM 6							
EOM 7							
EOM 8							
EOM 9							
EOM 10							
EOM 11							
EOM 12							

Extra Credit What would the (FV) be if your downpayment had been 30% and the payments (PMTs) were \$600.00 per month?

FV at end of 12 months (EOM12)

Interest is never recaptured and a brutal 1 way expense for borrowing. Be aware of all the Terms and APR Pay attention to the outflow of cash and the equity change especially in automobile and personal property loans.

ONLY Invest in appreciating assets, borrow wisely, chunk down PV to build EQUITY

CAR LOAN, 1 year amortizing table

SP = SALES PRICE

DP = DOWN PAYMENT

PV = BALANCE OWING or **P**resent **V**alue of the car loan or balance due

APR = ANNUAL INTEREST (written as **A**nnual **P**ercentage **R**ate)

IR = INTEREST RATE per cycle (example monthly payments is the APR divided by 12)

N = AMORTIZATION (TIME, CYCLE LENGTH, & TERMS of the loan)

PMT Amount = PAYMENT PER PERIOD depending on length of Amortization

FV = FUTURE VALUE OR Amount OWING AT ANY PARTICULAR TIME Period

\$25,000.00

\$5,000.00

\$20,000.00

12%

1%

5 years

\$445.00

Time	PV BALANCE of Loan \$\$\$ owed	APR annual % rate	IR interest per cycle	PMT Payment cash flow out CF0	Interest \$\$\$ owed to LENDER	Principal Reduction Amount	FV new balance owing lender = future value
START begin month BOM 1	\$20,000.00	12%	1%	<0>	0	0	\$20,000.00
End Of Month EOM 1	\$20,000.00	12%	1%	\$445.00	\$200.00	\$245.00	★ \$19,755.00
note the prior month FV becomes the new PV & begins the next month							
EOM 2	★ \$19,755.00	12%	1%	\$445.00	\$197.55	\$247.45	\$19,507.55
EOM 3	\$19,507.55	12%	1%	\$445.00	\$195.07	\$249.92	\$19,257.62
EOM 4	\$19,257.62	12%	1%	\$445.00	\$192.57	\$252.42	\$19,005.20
EOM 5	\$19,005.20	12%	1%	\$445.00	\$190.05	\$254.95	\$18,750.25
EOM 6	\$18,750.25	12%	1%	\$445.00	\$187.50	\$257.49	\$18,492.75
EOM 7	\$18,492.75	12%	1%	\$445.00	\$184.93	\$260.07	\$18,232.68
EOM 8	\$18,232.68	12%	1%	\$445.00	\$182.32	\$262.67	\$17,970.01
EOM 9	\$17,970.01	12%	1%	\$445.00	\$179.70	\$265.30	\$17,704.71
EOM 10	\$17,704.71	12%	1%	\$445.00	\$177.04	\$267.95	\$17,436.76
EOM 11	\$17,436.76	12%	1%	\$445.00	\$174.37	\$270.63	\$17,166.12
EOM 12	\$19,755.00	12%	1%	\$445.00	\$171.66	\$273.34	\$16,892.79

Extra Credit What would the (**FV**) be if your downpayment had been 30% and the payments (**PMTs**) were \$600.00 per month?

FV at end of 12 months (EOM12)

\$12,109.93

Notice how each month the PMTs are = but the charged interest is slightly less because of a declining principal balance AND the principal reduction amount increases as well