

FINANCE FORMULAS

Basic Formulas

Simple Interest Formula	$A = P(1 + rt)$
Compound Interest Formula	$A = P(1 + i)^N$
Annual Percentage Yield	$APY = (1 + i)^n - 1$
Future Value of an Annuity	$FVA = P \left(\frac{(1 + i)^N - 1}{i} \right)$
Present Value of an Annuity	$W = LS \left(\frac{i}{1 - (1 + i)^{-N}} \right)$

P = Principle $i = r/n$ $N = nt$ W = Withdrawal LS = Lump Sum

Mortgage Formulas

Monthly Mortgage Payment	$M = L \left(\frac{i}{1 - (1 + i)^{-N}} \right)$
Interest Due on the Kth Payment	$I_K = M(1 - (1 + i)^{K-1-N})$
Principle Due on the Kth Payment	$P_K = M(1 + i)^{K-1-N}$
Balance After K Payments	$B_K = M \left(\frac{1 - (1 + i)^{K-N}}{i} \right)$
Equity After K Payments	$E_K = \text{Cost of Home} - B_K$

$i = r/n$ $N = nt$ M = Monthly Payment L = Loan Amount