Mathematics of Finance

VARIABLES TO KNOW

I  Simple interest

P  Principal, Present Value, Proceeds
   This is the amount of money that you put in the bank (or need to put in the bank) NOW. It’s also the amount of money that you borrow (or need to borrow) NOW.

r  interest rate

t  time (in years)

A  amount, Future Value
   This is the amount of money that you have in the bank (or need to have in the bank) LATER. It’s also the amount of money that you borrow (or need to borrow) LATER.

n  number of compounding periods per year

r e  the effective interest rate

R  periodic payment (at the end of each period)

FORMULAS TO USE

\[ I = Prt \]
\[ A = P(1 + rt) \]
\[ A = P \left( 1 + \frac{r}{n} \right)^{nt} \]
\[ A = Pe^{rt} \]
\[ r_e = \left(1 + \frac{r}{n}\right)^n - 1 \]
\[ A = Rn \left[ \frac{1 + \frac{rt}{n}}{r} \right] - 1 \]
\[ P = Rn \left[ \frac{1 - \left(1 + \frac{r}{n}\right)^{-nt}}{r} \right] \]
\[ R = \frac{Pr}{n \left[ 1 - \left(1 + \frac{r}{n}\right)^{-nt} \right]} \]