Financial Formulas Related to the Time Value of Money

Scientific and Business Calculators have functions that make it easy to calculate these numbers.

SIMPLE INTEREST

$$I = Prt$$

FUTURE VALUE FOR SIMPLE INTEREST

$$A = P(1 + rt)$$

COMPOUND INTEREST

$$A = P(1 + \frac{r}{n})^{nt}$$

CONTINUOUS COMPOUNDING

$$A = Pe^{rt}$$

PRESENT VALUE (COMPOUND INTERST)

$$P = \frac{A}{(1 + \frac{r}{n})^{nt}}$$

EFFECTIVE ANNUAL YIELD

$$Y = (1 + \frac{r}{n})^{n} - 1$$

VALUE OF AN ANNUITY

$$A = \frac{P[(1 + \frac{r}{n})^{nt} - 1]}{\frac{r}{n}}$$

REGULAR PAYMENTS NEEDED TO ACHIEVE A FINANCIAL GOAL

$$P = \frac{A(\frac{r}{n})}{[\left(1 + \frac{r}{n}\right)^{nt} - 1]}$$

LOAN PAYMENT FORMULA FOR FIXED INSTALLMENT LOANS

$$PMT = \frac{P(\frac{r}{n})}{[1 - \left(1 + \frac{r}{n}\right)^{-nt}]}$$