Math 1001 Quantitative Reasoning and Skills – Finance Formulas

In the formulas listed below, the following variables have consistent meaning:

A = accumulated value P = Principal (amount invested) r = interest rate t = time in years

n = number of pieces into which the year is broken

Annually: n=1 Semi-annually: n=2 Quarterly: n=4 Monthly: n=12 Daily: n=365

Description	Formula
Sales Tax	Sales Tax = (Tax Rate)(Cost of Item)
Income Tax	Adjusted Gross Income = (Gross Income – Adjustments); Taxable Income = Adjusted Gross Income – Exemptions – Deductions; Income Tax = Tax on Taxable Income – Tax Credits
Future value of an investment PERIODIC Compounding	$A = P(1 + \frac{r}{n})^{nt}$
Future value of an investment CONTINUOUS Compounding	$A = Pe^{rt}$
Effective Annual Yield	$Y = (1 + \frac{r}{n})^{n} - 1$
Present Value of an Investment (Principal, P, that must be invested in order to grow to accumulated value, A)	$P = \frac{A}{(1 + \frac{r}{n})^{nt}}$
Future Value of an Ordinary Annuity (Contribution, P, must be made every period)	$A = \frac{P[\left(1 + \frac{r}{n}\right)^{nt} - 1]}{(\frac{r}{n})}$
Regular Payments needed to reach a Financial Goal	$P = \frac{A(\frac{r}{n})}{[\left(1 + \frac{r}{n}\right)^{nt} - 1]}$
Regular Payment Amount (PMT) required to repay a loan of P dollars	$PMT = \frac{P(\frac{r}{n})}{[1 - \left(1 + \frac{r}{n}\right)^{-nt}]}$