Finance Formulas

Simple Interest

\[ A = P(1 + rt) \]

Compound Interest

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

Continuous Compound Interest

\[ A = Pe^{rt} \]

Annual Percentage Yield

\[ APY = \left(1 + \frac{r}{n}\right)^n - 1 \text{ (Compound)}, \quad APY = r \text{ (Simple)}, \quad APY = e^r - 1 \text{ (Continuous)} \]

Future Value of an Increasing Annuity (With a Zero Present Value)

\[ FV = PMT \frac{(1 + i)^m - 1}{i} \]

Future Value of an Increasing Annuity (With a Nonzero Present Value)

\[ FV = PV(1 + i)^m + PMT \frac{(1 + i)^m - 1}{i} \]

Present Value of a Decreasing Annuity (With a Future Value of Zero)

\[ PV = PMT \frac{1 - (1 + i)^{-m}}{i} \]

Amortization

\[ PMT = \frac{i(PV)}{1 - (1 + i)^{-m}} \]

Present Value of a Decreasing Annuity (With a Nonzero Future Value)

\[ PV = FV(1 + i)^{-m} + PMT \frac{1 - (1 + i)^{-m}}{i} \]

Estimate of the Future Value of a Credit Card

\[ B_n = B(1 + i - r)^n \]