Some of the more useful formulae from Ch. 21-22:

Variables:
P = principal (savings/loans) or present value (inflation/depreciation)
A = accumulated amount
I = interest
t = time (in years)
m = number of compounding periods per year
n = mt = total number of compounding periods
r = annual nominal interest rate
i = \frac{r}{m} = interest rate per compounding period
APY = annual percentage yield
d = monthly payment

• Simple Interest:
  \cdot I = Prt
  \cdot A = P(1 + rt) = P + I
  \cdot APY = r

• Compound Interest:
  \cdot A = P\left(1 + \frac{r}{m}\right)^n
  \cdot APY = \left(1 + \frac{r}{m}\right)^m - 1

• Continuous Compounding:
  \cdot A = Pe^{rt}
  \cdot APY = e^r - 1

• Savings Formula:
  \cdot A = d\left[\frac{(1+i)^n-1}{i}\right] = d\left[\frac{(1+\frac{r}{m})^n-1}{\frac{r}{m}}\right]

• Inflation: Constant Rate:
  \cdot Future Price = P(1 + a)^t
  \cdot Future Value of P Dollars = P(1 - \frac{a}{1+a})^t

• Depreciation:
  \cdot Future Value = P(1 + i)^t

• Inflation: Consumer Price Index:
  \cdot \frac{\text{cost in year A}}{\text{CPI in year A}} = \frac{\text{CPI in year B}}{\text{cost in year B}}
• **Simple Interest:**
  
  - Add-on loan: \( d = \frac{1}{n}(P + I) \)
  - Discounted loan: \( d = \frac{1}{n}P \)

• **Compound Interest:**

  - Conventional loan: \( A = d\left[\frac{1-(1+i)^{-n}}{i}\right] \)

• **Equity:**

  - Equity = principal paid = [original principal] - [principal remaining]