

Math 1030 Formulas

Summer 2009

Financial formulas:

Balance after y years: $P \left(1 + \frac{R/100}{n}\right)^{ny}$.

Balance after y years: $P + (R/100) \cdot n \cdot y \cdot P$.

Loan payment:

$$\text{Payment} = \frac{P \left(\frac{R/100}{n}\right)}{1 - \left(1 + \frac{R/100}{n}\right)^{-ny}}.$$

Savings plan:

$$\text{Balance} = D \frac{\left(1 + \frac{R/100}{n}\right)^{ny} - 1}{\left(\frac{R/100}{n}\right)}.$$

Modeling formulas:

$y = mx + b$ and $y = q_0(r^t)$.

Half life/doubling time:

Approximation: $\frac{70}{P}$.

Precise doubling time: $\frac{\log(2)}{\log(1+R/100)}$

Precise half life: $\frac{\log(1/2)}{\log(1-R/100)}$

Geometry:

Circumference of a circle: $2\pi r$.

Area of a circle: πr^2 .

Surface area of a sphere: $4\pi r^2$.

Volume of a sphere: $\frac{4}{3}\pi r^3$.