MATH 1030 - Introduction to Quantitative Analysis

Formula Sheet

April 25, 2012

• Simple Interest

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

• Compound Interest Formula:

\[ A = P \left(1 + \frac{\text{APR}}{n}\right)^{nY} \]

• Continuous Compounding Formula:

\[ A = P \times e^{(\text{APR} \times Y)} \]

• Loan Payment Formula:

\[ \text{PMT} = \frac{P \times \left(\frac{\text{APR}}{n}\right)}{1 - \left(1 + \frac{\text{APR}}{n}\right)^{(-nY)}} \]

• Savings Plan Formula:

\[ A = \text{PMT} \times \frac{\left(1 + \frac{\text{APR}}{n}\right)^{(nY)} - 1}{\left(\frac{\text{APR}}{n}\right)} \]

• APY

APY for Compounded Interest = \( \left(1 + \frac{r}{n}\right)^n - 1 \)

APY for Continuous Compounding = \( e^r - 1 \)

GEOMETRY

• Sphere

Surface Area = \( 4\pi r^2 \), Volume = \( \frac{4}{3}\pi r^2 \)

• Cylinder

Surface Area (without top and bottom) = \( 2\pi rh \), Volume = \( \pi r^2h \)

Surface Area (with top and bottom) = \( 2\pi rh + 2\pi r^2 \)

• Box

Surface Area = \( 2(lh + lb + bh) \), Volume = \( lbh \)
**UNITS**

Unit conversions required on the test will be provided along with the problem. Some common conversions and prefixes you should be aware of are

- centi = 100 (example 1 centimeter = 100 meter)
- kilo = 1000 = 10^3
- mega = 10^6
- milli = 10^-3
- 1 Kg = 2.2 pounds
- 1 mile = 1.6 Km
- 1 foot = 12 inches
- 1 litre = 1000 cm^3