Simple Interest Formulas and Calculations:

- Simple Interest
  - **I = Prt**
- Calculate Future value (Principal + Interest)
  - **S = P(1 + rt)**
- Calculate Principal Amount/ Present Value, solve for P
  - **P = S / (1 + rt)**
- Calculate rate of interest in decimal, solve for r
  - **r = (1/t)(S/P - 1) or (S/P - 1)/t**
- Calculate rate of interest in percent
  - **R = r * 100**
- Calculate time, solve for t
  - **t = (1/r)(S/P - 1)**

Where

P = Present Value **S** = Future value **I**= Simple interest **r** = Interest rate **t** = Term

***Exercise*: You invest R60 000 for five years at an interest rate of 10,5% per year. What interest will you receive at the end of the five years, and what will the total amount be that you will receive?**

Compound Interest Formulas and Calculations:

- Calculate Future value (Principal + Interest)
  - **$S = P(1 + r/n)^{nt}$**
- Calculate Principal Amount, solve for P
  - **$P = S / (1 + r/n)^{nt}$**
- Calculate rate of interest in decimal, solve for r
  - **$r = n[(S/P)^{1/nt} - 1]$**
- Calculate rate of interest in percent
  - **R = r * 100**
- Calculate time, solve for t
  - **$t = [\ln(S) - \ln(P)] / n[\ln(1 + r/n)]$**

Where:

S = Future value **P** = Principal Amount **I** = Interest Amount **r** = Interest Rate
t = term / Period **n** = number of compounding periods per unit t

***Exercise:* You wish to invest R1 000 for two years. Which of the following Investment opportunities will give you the best return on your investment?**
(a) 10% simple interest per annum;
(b) 9½% interest per annum compounded bi-annually;
(c) 9% interest per annum compounded quarterly.

VIDEO: http://www.mathsexcellence.co.za/maths_video_tutorials.php