MATHS *Formulae*

Paper 1

GRADE 10

FINANCE

$A = P(1 + ni)$	Simple interest
$A = P(1 + i)^n$	Compound interest

SERIES AND SEQUENCES

$T_n = a + (n - 1)d$	Linear sequence

PROBABILITY

$P(A) = \frac{n(A)}{n(S)}$	Probability
$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$	Probability rule

GRADE 11

Grade 10 formulae and:

ALGEBRA

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	Quadratic formula

FINANCE

$A = P(1 - ni)$	Linear depreciation
$A = P(1 - i)^n$	Reducing balance depreciation

GRADE 12

Grade 10 and 11 formulae and:

FINANCE

$F = \frac{x[(1 + i)^n - 1]}{i}$	Future value
$P = \frac{x[1 - (1 + i)^{-n}]}{i}$	Present value

SERIES AND SEQUENCES

$T_n = ar^{n-1}$	Geometric sequence
$S_n = \frac{n}{2}[2a + (n - 1)d]$	Sum of linear sequence
$S_n = \frac{a(r^n - 1)}{r - 1} \;;\; r \neq 1$	Sum of geometric series
$S_\infty = \frac{a}{1 - r} \;;\; -1 < r < 1$	Sum to infinity

CALCULUS

$f'(x) = \lim_{h \to 0} \frac{f(x + h) - f(x)}{h}$	Derivative from 1st principles