

MCR3U: Functions, Grade 11, University Preparation

Discrete Functions

Arithmetic Sequence:	$t_n = a + (n - 1)d$
Geometric Sequence:	$t_n = ar^{n-1}$
Sum of Arithmetic Series:	$S_n = \frac{n}{2}[2a + (n - 1)d]$
Sum of Geometric Series:	$S_n = \frac{a(r^n - 1)}{r - 1}, r \neq 1$

Financial Applications

Simple Interest	$I = Prt \quad \text{and} \quad A = P + I$
Compound Interest	$A = P(1 + i)^n$
Present Value	$PV = A(1 + i)^{-n} \quad \text{or} \quad PV = \frac{A}{(1 + i)^n}$
Amount of An Annuity	$A = \frac{R[(1 + i)^n - 1]}{i} \quad \text{or} \quad A = R \left[\frac{(1 + i)^n - 1}{i} \right]$
Present Value of An Annuity	$PV = \frac{R[1 - (1 + i)^{-n}]}{i} \quad \text{or} \quad PV = \frac{R[1 - (1 + i)^{-n}]}{i}$