

Rosen pp. 166

Sum	Terms	Closed Form
$\sum_{k=0}^n ar^k (r \neq 0)$	$ar^1 + ar^2 + \dots + ar^n$	$\frac{ar^{n+1} - a}{r - 1}, r \neq 1$
$\sum_{k=1}^n k$	$1 + 2 + 3 + \dots + n$	$\frac{n(n+1)}{2}$
$\sum_{k=1}^n k^2$	$1^2 + 2^2 + \dots + n^2$	$\frac{n(n+1)(2n+1)}{6}$
$\sum_{k=1}^n k^3$	$1^3 + 2^3 + \dots + n^3$	$\frac{n^2(n+1)^2}{4}$
$\sum_{k=0}^{\infty} x^k, x < 1$	$x^0 + x^1 + x^2 + x^3 + \dots$	$\frac{1}{1-x}$
$\sum_{k=1}^{\infty} kx^{k-1}, x < 1$	$x^0 + 2x^1 + 3x^2 + 4x^3 + \dots$	$\frac{1}{(1-x)^2}$