TABLE Some Useful Summation Formulae.

Sum	*Closed Form*
$\sum_{k=0}^{n} ar^k \ (r \neq 0)$	$\frac{ar^{n+1} - a}{r - 1}, r \neq 1$
$\sum_{k=i}^{n} ar^k \ (r \neq 0), (i \neq 0)$	$\frac{ar^{n+1} - ar^i}{r - 1}, r \neq 1$
$\sum_{k=i}^{n} c$	$c(n-i+1)$
$\sum_{k=1}^{n} k$	$\frac{n(n+1)}{2}$
$\sum_{k=1}^{n} k^2$	$\frac{n(n+1)(2n+1)}{6}$
$\sum_{k=1}^{n} k^3$	$\frac{n^2(n+1)^2}{4}$