Summations

Thursday, April 14, 2022 8:18 PM

Closed forms for sums

Closed form for the sum of terms in an arithmetic sequence

$$\sum_{k=0}^{n-1}(a+kd) = an + \frac{d(n-1)n}{2}$$

$$\sum_{k=0}^{n}(a+kd) = a(n+1) + \frac{dn(n+1)}{2}$$

Closed form for the sum of terms in a geometric sequence

$$\sum_{k=0}^{n-1} a \cdot r^k = \frac{a(r^n-1)}{r-1}$$

$$\sum_{k=0}^{n} a \cdot r^k = \frac{a(r^{(n+1)}-1)}{r-1}$$