SUMMATION OF THE TERMS OF A SEQUENCE

 $\sum_{j=m} a_j = a_{m+1} + a_{m+1} + \dots + a_n$

The variable j'is reflered to as the index of summation.

· m is the Lower limit and on is the upper limit of the Summation

Example

) Sum the first 7 texms of [n2] where n=1,2,3,4,5,6,7

$$\sum_{j=1}^{7} a_j^2 = \sum_{j=1}^{7} j^2 = |+4+9+16+25| + 36+49$$

2) what is the value of (-1) $\sum_{K=4}^{8} a_j^2 = \sum_{K=4}^{8} (-1)^{j} = |+(-1)+1| + (-1)+1$

There are two types of summation of a sequence. They are: -> Geometric serves

= 10+45

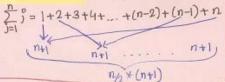
ARITHMETIC SERIES = [\$ (2+3))]-[\$ (2+3)] - Frick

The sum of the apithmetic frogression a, a+d, a+2d, -, a+nd is called an arithmetic serves.

Theorem: The sum of the terems of the arithmetic progression.

 $a_1a + d_2a + 2d_1$, a + ndis, $3 = \sum_{j=1}^{n} (a + jd) = na + d \sum_{j=1}^{n} a + d \frac{n(n+1)}{2}$

 $S = \sum_{j=1}^{n} (a+jd)$, $\sum_{j=1}^{n} a + \sum_{j=1}^{n} jd = na+d \sum_{j=1}^{n} j$



SIEDMETRIC SERIES

a geometric progression a, ap, General formula: - form for x>1.

Serves Serves (Serves)

Serves (Serves)

Therefore (Serves)

Theorem: The sum of the term of a $\frac{1}{300}$ $\frac{1}{900}$ $\frac{1}{9$

*Substract ps-s=[ar+ar2+ar3...+arn+1] -[a+ap+ar2+..+apn] = apn+1 a

THEINITE GEOMETRIC YERIEY

multiply S by Pn ari = artartar3+ + +arnti metric serves is the sum of an infinite geometric serves. The sum S of an infinite geometric series with -1 < r < 1 given by the formula

An infinite sorbes that 1-17 has a sum is called to convergent sorbes S= a1

Sn is called the paptial sum of the services.

Example: - \(\frac{1}{2} \) 10(1/2) \(\frac{1}{2} \) P= 1/2 since, 1/2/K1, the su 2 20