## **Summation Notes**

Using the formula 3k, substitute the numbers from 1-8 into the formula and add it up.

Ex 2. Using the formula  $w^2-4$ , substitute the numbers from 1-5 into the formula then add them up.

$$(1^2-4)+(2^2-4)+(3^2-4)+(4^2-4)+(5^2-4)=$$

$$(1-4)+(4-4)+(9-4)+(16-4)+(25-4)=$$

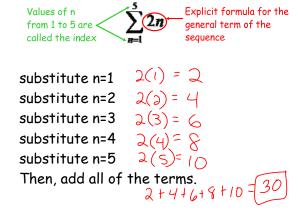
$$-3+0+5+12+21=35$$

Do you think there is a "math way" to write what I was asking you to do in #1 and #2?

A <u>series</u> is an expression that indicates the SUM of terms of a sequence.

Summation notation uses  $\sum$  (sigma) as a shortcut to writing a series.

## For example



Find the sum of each finite series.

1. 
$$\sum_{j=1}^{6} (j-2) = (1-2) + (2-2) + (3-2) + (4-2) + (52) + (62)$$

$$= -1 + 0 + 1 + 2 + 3 + 4$$

$$= 9$$

$$2. \sum_{n=1}^{3} 3^{n} = 3^{1} + 3^{2} + 3^{3}$$

$$= 3 + 9 + 27$$

$$= 39$$

Write each arithmetic series in summation notation.

