Sigma Notation



University of Minnesota Sigma Notation

Preliminaries:

Sequences of numbers

Objectives:

Find a sum written using Sigma Notation

$$\sum_{k=1}^{10} 2k$$

2+4+6+8+10+12+14+16+18+20=110

$$\sum_{k=0}^{9} 2(k+1)$$

$$\sum_{k=1}^{5} k^2$$

$$1 + 4 + 9 + 16 + 25 = 55$$

Example 3

$$\sum_{k=0}^{3} k^3 - k^2$$

$$0 + 0 + 4 + 18 = 22$$

Example 4

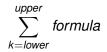
$$\sum_{k=1}^{n} 2k - 1 = n^2$$

$$1 + 3 + 5 + 7 + \ldots + (2n - 1)$$

If n = 11= 1If n = 21 + 3= 4If n = 31 + 3 + 5= 9If n = 41 + 3 + 5 + 7= 16If n = 51 + 3 + 5 + 7 + 9= 25

Sum of the first *n* odd integers

								17
							15	
						13		
					11			
				9				
			7					
		5						
	3							
1								



- Σ means find the sum
- k is a variable that gets plugged into the formula
- *k* is an integer that starts at the 'lower' summand and goes up one at a time until reaching the 'upper' summand