20181013a MT105A 02 Summations and Products

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October 13, 2018

library(Ryacas)

### Summation in R

Suppose that x1 = 1; x2 = 3; x3 = -1; x4 = 5

Calculate the summation of x^2 from i=1 to i=4

i = c(1,3,-1,5)  
x = Sym('x')  
x2 = Eval(x^2,list(x=i[1:4]))  
print(x2)

## [1] 1 9 1 25

sum(x2)

## [1] 36

### 

### Products in R

Now x1 = 2, x2 = 9, x3 = 5, x4 = 3

Calculate the products of x^2 + x - 1 from i=1 to i=4

i = c(2,9,5,3)  
x = Sym('x')  
f = x^2 + x - 1  
fx = Eval(f, list(x=i[1:4]))  
print(fx)

## [1] 5 89 29 11

prod(fx)

## [1] 141955