Find Zeros of Functions, Integration, Differentiation

In the Mathematics>>Script & Furmula>>Zeros palette, we have these functions to find the zero of a function:

1. Find All Zeros of f(x)

2. New Raphson Zero Finder

3. Ridders Zero Finder

4. nD Nonlinear System Single Solution: n-D variables

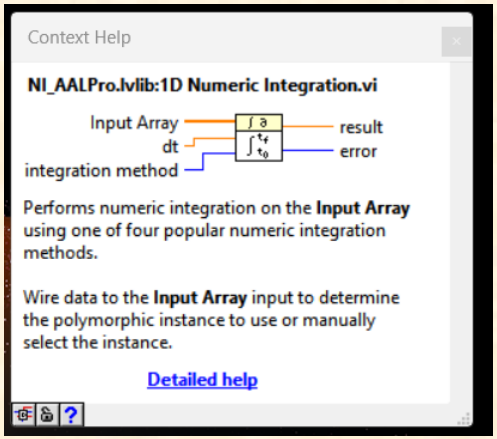
5. nD Nonlinear System Solver: n-D variables

In addition, for polynomial, on Mathematics>>Polynomial palette

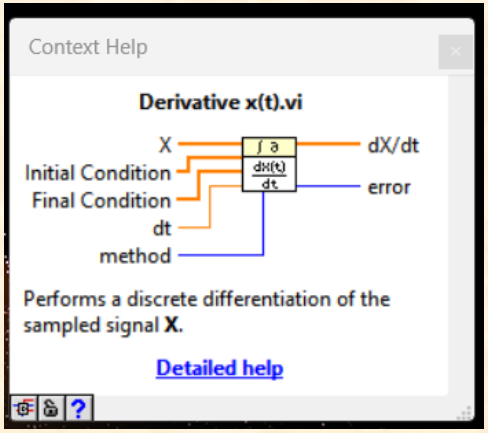
6. Polynomial Roots: find the zero pf f(x)

7. Polynomial Real Zeros Counter Vis: find the number of the roots.

8. Numeric Integration



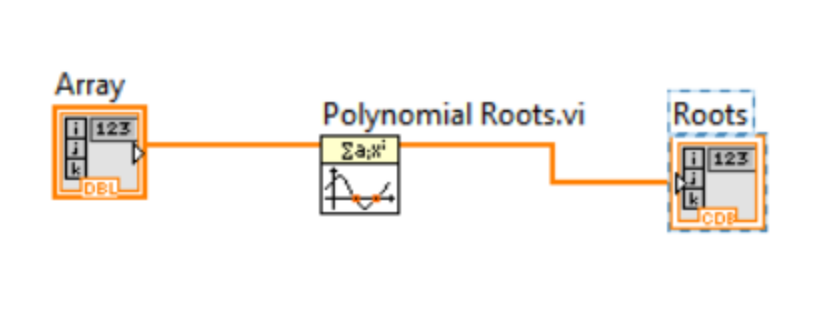
9. Numeric Derivative x(t)

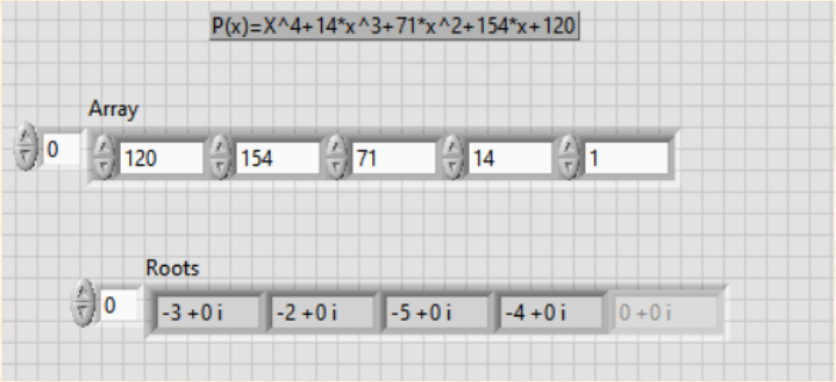


Assignment 1

Find the zero for the polynomial
P(x)=x^4+14*x^3+71*x^2+154*x+120=0.

Using the Mathematics/Script & Fomula/Zeros/Polynomial Roots.vi

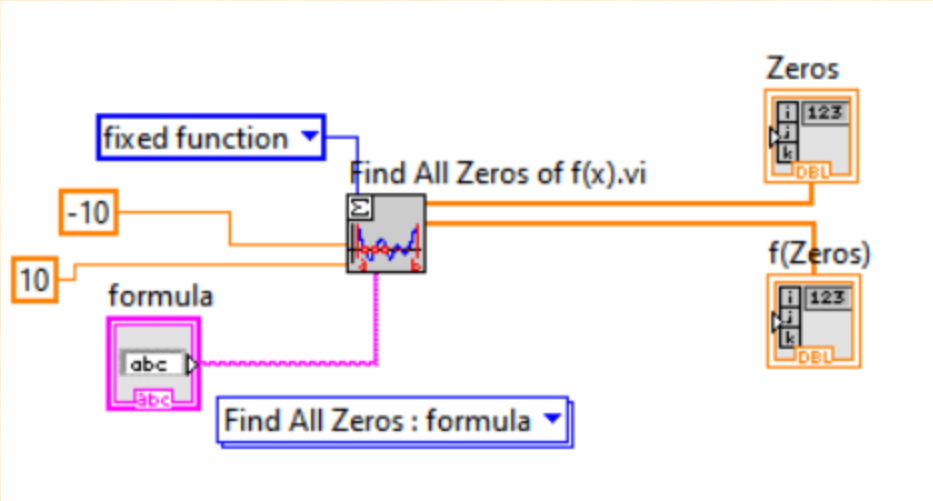


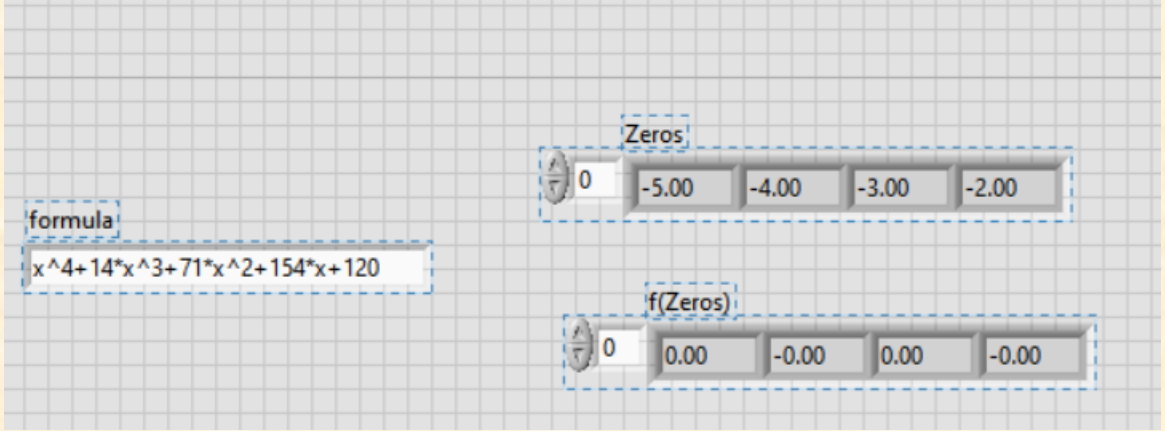


Assignment 2

Find the zero for the equation
P(x)=x^4+14*x^3+71*x^2+154*x+120=0.

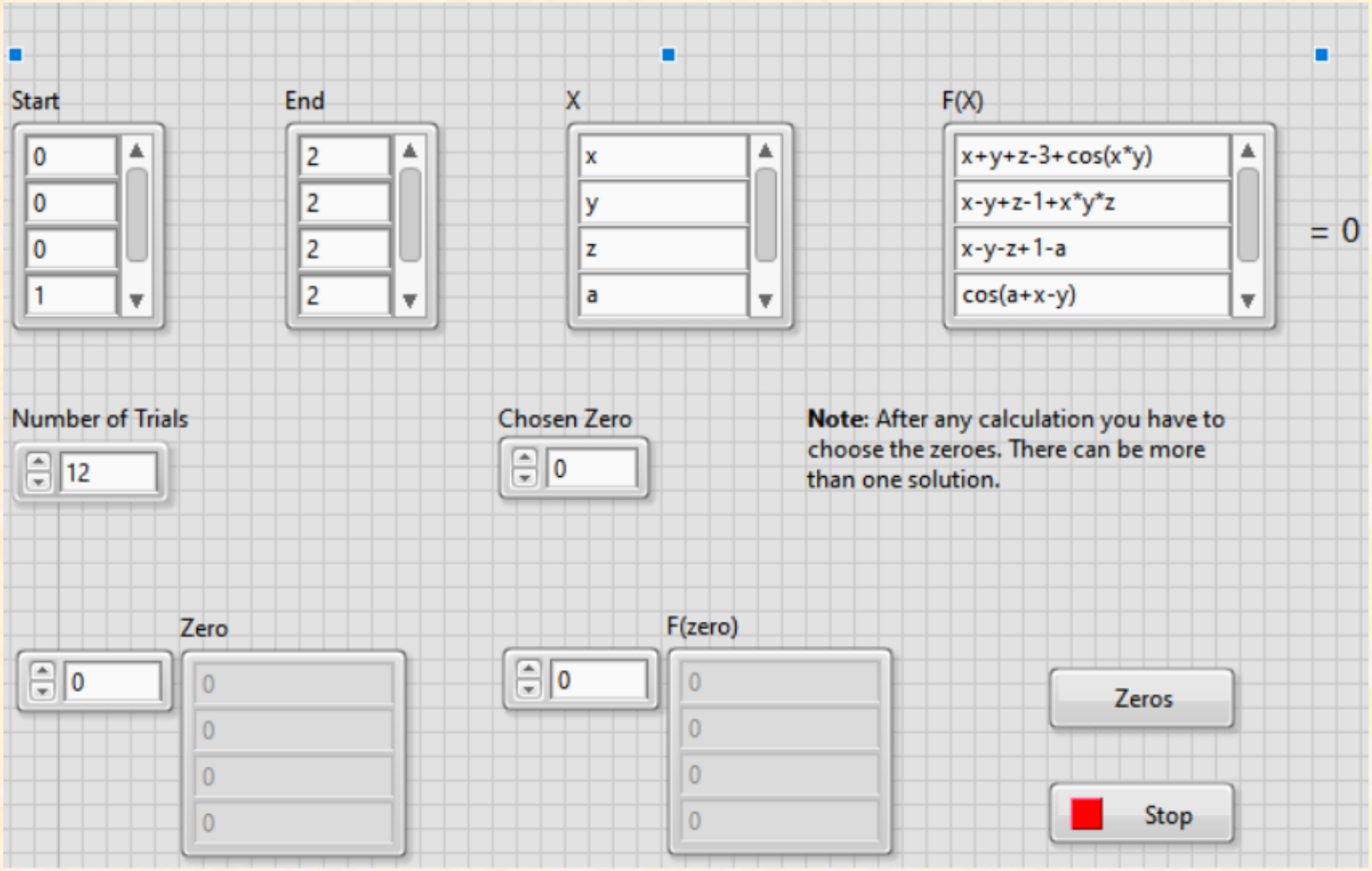
Using the Find All Zero of f(x).vi





Assignment 3

Use the nD Nonlinear System Single Solution function to find the solution of the following equations:

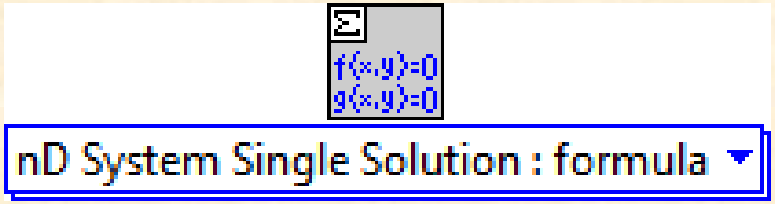


Hint:

1). You can referee the example code Equation Explorer.vi, located in the fold

C:\Program Files\National Instruments\LabVIEW 2023\examples\Mathematics\Scripts and Formulas

2). You only need to directly wire the associated input and output terminals of this function.



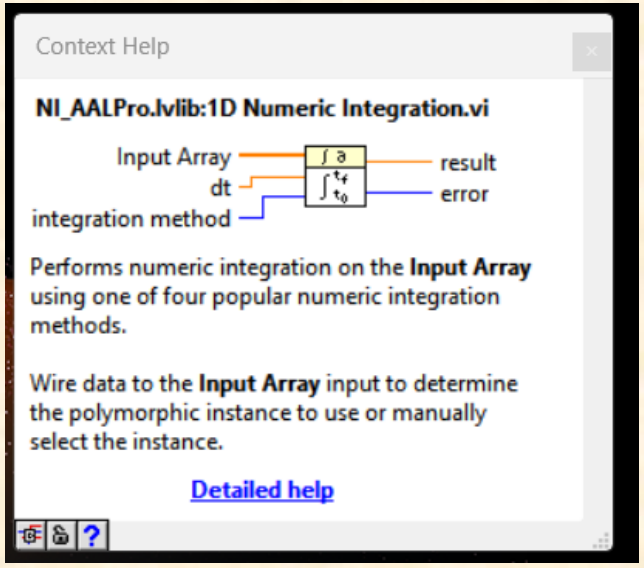
Assignment 4: Numeric Integration

Use the Numeric Integration.vi function to calculate the integral of

x(t)=t^3+t^2, between the range $0 \leq t \leq 20$, with sampling step 0.25 .

Also, use the XY Graph to show the plot of the x(t) in the range.

Hint: using a for loop the sample the x(t) in the range of t.



Assignment 5: Derivate x(t)

Use the Derivative x(t).vi function to find the derivative of

x(t)=t^3+t^2, between the range 0 ≤ t ≤ 20, with sampling step 0.5 .

Also, use the XY Graph to show the plot of the x(t) in the range.

Hint: using a for loop the sample the x(t) in the range of t.