

NUMERICAL ANALYSIS MADE EASY - FUNCTIONALITY

for the TiNspire CAS – www.TiNspireApps.com

Zeros

Bisection Method
Newton Method
Regula Falsi Method

Quadratic Functions

Do the Quadratic Equation
Complete the Square

Differentiation

READ: Linear Functions
3 Difference Quotients for $f'(x)$ & $f''(x)$: Forward, Backward, Central Difference Quotient
Average Rate of Change
Find Secant Line given 2 Points
Find Point Slope & $y=mx+b$ given Pt & Slope
Find Tangent Line & Evaluate
Differentials

Integration

Area Approximation using RAMS, TRAP, SIMPSON given Function
Area Approximation using RAMS, TRAP given Table

Differential Equations

Euler Method
Modified Euler / Heun Method
Ralston Method
Midpoint - RK2 Method
Runge Kutta - RK4 Method

Taylor Series

Develop Taylor Series using Definition
Taylor Series with Error Bound
Compose 2 Taylor Series

Matrices

READ about Matrices
All in One Matrix Analyzer

A + B
A * B
k*A
Symmetry(A)
Minor

Matrices Operations

Row Echolon
Reverse Row Echolon
Gauss Elimination
Find EigenValues
Find EigenVectors
Find Orthonormal Basis
Gram Schmidt Procedure
Find Inverse via RREF
Find Inverse via Formula
Find Determinant via Diagonal
Find Determinant via formula
Find Trace

Matrices Applications

LU Decomposition & solve $A*X=B$
Solve $A*X=B$
Solve $A*X=B$ with 1 Parameter
Cramer Rule to solve $A*X=B$
Simpson Algorithm
Coding: En/Decode Messages
Rotate a point via Matrices
Diagonalization
LU Factorization
QR Factorization
 $v(A)$ - Square Root
Read Magic Squares

Markov Chains & Stoch. Matrices

Stochastic and Regular Stochastic Matrix
Probability Vector
Terminal State & Fixed Probability Vector
Find A^n
nth State of a Markov Chain: p_0*A^n

Regression

Find Regression Line $y=mx+b$
Find Regression Line $y=mx+b$ Step by Step
Find Regression Line $y=a+bx$
Read: All about Linear Regression
Read: Correlation is not Causation!
Find Median-Median Line $y=mx+b$
Find Quadratic Regression $y=ax^2+bx+c$
Find Cubic Regression $y=ax^3+bx^2+cx+d$
Quartic Regression $y=ax^4+bx^3+cx^2+dx+e$
Find Power Regression $y=a*b^x$
Find Exponential Regression $y=a*x^b$
Find Logarithmic Regression $y=a+b*\ln(x)$
Find Sinusoidal Regression $y=a*\sin(bx+c)+d$
Logistic Regression $y=c*e^{(bx)}/(e^{(bx)}+a)$

Algebra & Polynomials

Solve any Equation or Inequality
Find Partial Fractions
All-in-one-Polynomial Explorer
Find Degree, Possible Rational Zeros
Find Roots, Lead. Coeffic., Dominant Term
Polynomial Division & Remainder
Synthetic Division

Convert: Decimals, Binaries, Hexadecimals