

LIBRARY SUBROUTINES & SOFTWARE PACKAGES

ALGEBRAIC PROGRAMS

- Subroutine for addition and subtraction of matrices.
 - Subroutine for the multiplication of a matrix stored in rows by a matrix stored in columns.
 - Subroutine transposing a matrix.
 - Subroutine inverting a matrix, Gauss - Jordan method.
 - Subroutine inverting the symmetrical matrix.
 - Routine Inverting a matrix, Gauss - Jordan method.
 - Routine inverting the symmetrical matrix.
 - Subroutine calculating own value of a matrix.
 - Subroutine calculating latent roots of a matrix.
 - Routine calculating the determinants.
 - Routine solving linear symmetric equations, Gauss method.
 - Routine solving algebraic equations of the 2 - nd, 3 - rd, and 4 - th order.
 - Subroutine solving algebraic equations of the 2 - nd, 3 - rd, and 4 - th order.
 - Subrouting calculating the roots of a polynom, Newton method.
 - Subroutine calculating the zero place of function, Newton method.
 - Subroutine calculating the zero place of function, regula falsi method.
 - Subroutine calculating roots, method of equal division.
 - Subroutine calculating roots, mixed method.
 - Subroutine arranging numbers.
 - Subroutine for multiplication of matrices stored in rows.
 - Routine calculating equations, Wegstein method.
 - Subroutine for multiplication the matrices by a matrix transposed.
 - Subroutine transposing a matrix and calculating the determinant.
 - Subroutine calculating the root of a given order.
 - Subroutine solving streak linear equations.
 - Routine solving streak linear equations.
 - Subroutine solving symmetric streak linear equations.
 - Routine solving symmetric streak linear equations.
 - Group of integrated rules.
 - Subroutine of approximated calculating of algebraic linear equations, least squares method.
 - Subroutine solving linear symmetric equations, Gauss method.
 - Subroutine calculating own value of matrices.
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ANALYSIS

- Subroutine solving first order differential equations with variable step, Runge - Kutta method.
- Subroutine solving first order differential equations with fixed step, Runge - Kutta method.
- Subroutine solving second order differential equations with variable step, Runge - Kutta method.
- Subroutine solving second order differential equations with fixed step, Runge - Kutta method.
- Subroutine solving a system of ordinary differential equations, method using Taylor series for rational right sides.
- Subroutine solving a system of ordinary differential equations, method using Taylor series for irrational right sides.
- Subroutine solving a system of first order differential equations with fixed step, Runge - Kutta method.
- Calculating of the gamma Euler function.
- Calculating of the Bessel function.
- Subroutine calculating integrals, Gauss method.
- Subroutine calculating integrals, Simpson method.
- Subroutine calculating integrals, Romberg method.
- Interpolation, Newton method.
- Numerical differentiation of a function.

ALGOL PROCEDURES

- RUMI — calculation of a linear equations system having a big, number of zero - coefficients (Gauss - Seidel's iteration method)

- RUMEU — calculation of a linear equations' system having a big number of zero-coefficients (elimination method)
- DETGAUSS — calculation of a coefficient's matrix determinant and calculation of a linear equations' system using Gauss elimination method (Choice of the main element).
- INVDET — reversing and calculation of quadratic matrix determinant (sequence rotation method - in ALGOL or JAS)
- Q - R — calculation of own matrix values (with real coefficients) using Q - R method
- Subroutines for matrix operations
- Algol procedures for complex matrix operations

LINEAR PROGRAMMING

- SIMPLEX method
- PERT — set of programs
- Transport problems

STATISTIC

- Routine calculating the correlation coefficients, complete, partial and multiply
- Routine calculating regression coefficients
- Routine generating random numbers

OTHERS

- Set of programs for electro-energetic computation:
 - Programs for long-term planning
 - Programs for day-cycle computation
 - Programs for network computation
 - Engineering programs
 - Statistical programs