# REFERAT 2

# Metode de tip Runge-Kutta

Consideram problema Cauchy ˘

y 0 = 2x-2y, y(0) = 1.

y'(x) = 2x - 2y = 2x - 2Ke^(-2x)

y'(x) + 2y(x) = 2x

Inlocuim y(x) cu K\*e^(-2x) si calculam derivata:

y'(x) = -2K\*e^(-2x)

Inlocuim in ecuatia difentiala:

-2K\*e^(-2x) + 2Ke^(-2x) = 2x

Simplificam si ajungem la:

2K\*e^(-2x) = 2x + C

deci solutia exacta este y(x) = x + 0.5 \* e^(-2x), x ∈ R.

Metoda lui Euler: alegem x\_max = 2, h = 0, 1.

Metoda Runge Kutta de ordin 4: alegem x\_max = 2, h = 0, 1

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Description automatically generated

A graph with blue and orange lines

Description automatically generated with low confidence

A screen shot of a computer program

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A screenshot of a computer program

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