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NOTE[1]

The due date is published on the course pages. Homework can be submitted only digitally. Instructions on labelling the "papers" can be found on the course pages.

1 Introductory Problems

INTRO 19   Use Euler's method with step sizes (a) $h = 0.2$, (b) $h = 0.1$, and (c) $h = 0.05$ to approximate $y(2)$ given that $y' = x + y$ and $y(1) = 0$. (Write a programme, do not try to compute manually.)

INTRO 20   Find the complete solution.

$$\begin{cases} y'' + 4y = 0, \\ \quad y(0) = 2, \\ \quad y'(0) = -5. \end{cases}$$

2 Homework Problems

EXERCISE 19   Use Euler's method with step sizes (a) $h = 0.2$ and (b) $h = 0.1$ to approximate $y(2)$ given that $y' = xe^{-y/2}$ and $y(0) = 0$.

EXERCISE 20   Find the general solution for

$$y'' + 4y' + 5y = 3x - 2.$$

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[1]Published on 2021-09-08 08:52:25+03:00.