

HOMEWORK 7

1. Use Euler's method, Improved Euler's method and Runge-Kutta method to find the approximation of $y(3)$ for the following IVP

$$y' = x + y, y(1) = 2$$

using step size $h = 1$ and $h = 0.5$. You are allowed to use Maple for this problem.

2. Use concavity method to tell if the approximation obtained by Euler is larger or smaller than the actual solution.

3. Solve this IVP (use the formula of first order linear ODE) and compute $y(3)$ to see the actual error.