

Problem:

Solve the following problem (using the 3 methods listed below) over the interval from $x = 0$ to 1 using a step size of 0.05 where $y(0) = 1$.

$$\frac{dy}{dx} = (1 + 4x)\sqrt{y}$$

Display all your results on the same graph.

- Using Euler's method.
- Using Heun's method.
- Using the fourth-order RK method (RK4).

Requirements:

- Write a main program and a separate function program for each method.
- Main Program
 - Define h
 - Define vector for position.
 - Define function handle for dy/dx
 - Call function program for Euler's method
 - Call function program for Heun's method
 - Call function program for RK4 method
 - Generate graph
- Function programs
 - Write a separate function program for each method

