TUTORIAL

Taylor series method:

1. By Taylor series method, find y(0.1), y(0.2) if $\dfrac{dy}{dx} = 3e^{x} + 2y, \; y(0) = 0$.

2. By Taylor series method, find y(0.1), y(0.2) if $\dfrac{dy}{dx} = x - y^{2}, \; y(0) = 1$.

3. Using Taylor series method, find y at x=1.1 by $\dfrac{dy}{dx} = x^{2} + y^{2}, \; y(1) = 2$.

4. Using Taylor series, find y at x=0.1 if $\dfrac{dy}{dx} = x^{2} y - 1, \; y(0) = 1$.

Euler method:

5. Solve $y^{1} = \dfrac{y-x}{y+x}$, y(0)=1 at x=0.1 by taking h=0.02 by using Eulers method.

Modified Euler method:

6. Apply modified Euler's method to find y(0.2) and y(0.4) given $y^{1} = x^{2} + y^{2}$, y(0)=1 by taking h=0.2.