

Numerical Methods - HW11 (Fixed)

Q1: Shooting Method Result

$$x = 0.0, y = 1.000000$$

$$x = 0.1, y = 1.128564$$

$$x = 0.2, y = 1.250137$$

$$x = 0.3, y = 1.364720$$

$$x = 0.4, y = 1.472562$$

$$x = 0.5, y = 1.573986$$

$$x = 0.6, y = 1.669396$$

$$x = 0.7, y = 1.759271$$

$$x = 0.8, y = 1.844073$$

$$x = 0.9, y = 1.924190$$

$$x = 1.0, y = 2.000000$$

Q2: Finite Difference Method Result (Fixed)

$$x = 0.0, y = 1.000000$$

$$x = 0.1, y = 0.713911$$

$$x = 0.2, y = 0.530704$$

$$x = 0.3, y = 0.424456$$

$$x = 0.4, y = 0.382402$$

$$x = 0.5, y = 0.401887$$

$$x = 0.6, y = 0.489219$$

$$x = 0.7, y = 0.659876$$

$$x = 0.8, y = 0.939853$$

$$x = 0.9, y = 1.368076$$

$$x = 1.0, y = 2.000000$$

Q3: Variation Method Result

$$x = 0.0, y = 1.000000$$

$$x = 0.1, y = 0.935666$$

$$x = 0.2, y = 1.078150$$

$$x = 0.3, y = 1.219845$$

$$x = 0.4, y = 1.362162$$

$$x = 0.5, y = 1.506184$$

$$x = 0.6, y = 1.652752$$

$$x = 0.7, y = 1.802531$$

$$x = 0.8, y = 1.956053$$

$$x = 0.9, y = 2.113745$$

$$x = 1.0, y = 2.000000$$