

Mordi Msrta Chigozie

Mechanical Engineering

16/ENG-05/1022

Engineering Mathematics

Assignment 2

$$f(x) = e^{-0.5x} (4-x) - 2 = 4e^{-0.5x} - xe^{-0.5x} - 2$$

$$x = 0.5$$

$$f'(x) = -2e^{-0.5x} - e^{-0.5x} + 0.5xe^{-0.5x}$$

$$x_{i+1} = x_i - \frac{f(x_i)}{f'(x_i)}$$

$$f'(x_i)$$

$$x_{i+1} = 0.5 - \frac{(4e^{-0.5 \times 0.5} - 0.5 \times e^{(0.5 \times 0.5)} - 2)}{-2e^{-0.5 \times 0.5} - e^{(0.5 \times 0.5)} + 0.5 \times 0.5e^{-0.5 \times 0.5}}$$

$$= 0.5 - \frac{0.7258007407}{-2.141702153} = 0.828890606$$

$$-2.141702153$$

$$x_{i+1} = 0.884956 - \frac{0.001236535}{-1.643060782} = 0.885708605$$

$$-1.643060782$$