

$$f_4 = 0.8857086 - \frac{(e^{-(0.5 \times 0.8857086)} (4 - 0.8857086) - 2)}{(-0.5 \times e^{-(0.5 \times 0.8857086)} (4 - 0.8857086) - e^{-(0.5 \times 0.8857086)})}$$

$$= 0.8857088$$

$$f_5 = 0.8857088 - \frac{(e^{-(0.5 \times 0.8857088)} (4 - 0.8857088) - 2)}{(-0.5 \times e^{-(0.5 \times 0.8857088)} (4 - 0.8857088) - e^{-(0.5 \times 0.8857088)})}$$

$$= 0.8857088$$

ASSIGNMENT 2

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7/EN904/089

BLECT

ENG 382 ASSIGNMENT

$$f(x) = e^{-0.5x}(4-x) - 2, \quad x(0) = 0.5$$

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

$f'(x) =$ using product rule

$$u = e^{-0.5x} \quad u' = -0.5e^{-0.5x}$$

$$v = 4-x \quad v' = -1$$

$$f'(x) = u'v + v'u$$

$$= -0.5e^{-0.5x}(4-x) + (-1)(e^{-0.5x})$$

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

$$f_1 = 0.5 - \frac{(e^{-(0.5 \times 0.5)}(4-0.5) - 2)}{(-0.5e^{-(0.5 \times 0.5)}(4-0.5) - e^{-(0.5 \times 0.5)})}$$

$$= 0.83889$$

$$f_2 = \frac{0.83889}{0.5} - \frac{(e^{-(0.5 \times 0.83889)}(4-0.83889) - 2)}{(-0.5e^{-(0.5 \times 0.83889)}(4-0.83889) - e^{-(0.5 \times 0.83889)})}$$

$$= 0.884956$$

$$f_3 = 0.884956 - \frac{(e^{-(0.5 \times 0.884956)}(4-0.884956) - 2)}{(-0.5e^{-(0.5 \times 0.884956)}(4-0.884956) - e^{-(0.5 \times 0.884956)})}$$

$$= 0.8857086$$