Duke Tonbra James
15/ENG07/012
Petroleum Engineering
ENG 382

Assignment one (1)

1) $f(y) = \cos(y)$

$\cos y = 0$

$y_{i+1} = \cos y_i + y_i$

with guess value of $y = 0.05$

$y_{i+1} = \cos(0.05) + 0.05$

$= 1.0500$

$= 2.0498$

when $y_i = 2.0498$

$y_{i+1} = \cos(2.0498) + 2.0498$

$= 3.04916$

when $y_i = 3.04916$

$y_{i+1} = \cos(3.04916) + 3.04916$

$= 4.0477$

when $y_i = 4.0477$

$y_{i+1} = \cos(4.0477) + 4.0477$

$= 5.0452$

2. $f(z) = e^{-15z} - 2 + \cos(z)$

$e^{-15z} - 2 + \cos(z) = 0$

$z = e^{-15z} + \cos(z)$

$z_{i+1} = e^{-15z} + \cos(z_i)$

with a guess value of $z = 0.1$

$z_{i+1} = e^{-15(0.1)} + \cos(0.1)$

$= 1.2231$

when $z_i = 1.2231$

$z_{i+1} = e^{-15z(1.2231)} + \cos(1.2231)$

$= 0.9998$

when $z_i = 0.9998$

$z_{i+1} = e^{-15(0.9998)} + \cos(0.9998)$

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$= 0.99985$

when $z_i = 0.99985$

$$z_{i+1} = e^{-.5(0.99985)} + \cos(0.99985)$$

$$= 0.99985$$

when $z_i = 0.99985$

$$z_{i+1} = e^{-.5(0.99985)} + \cos(0.99985)$$

$$= 0.99985$$

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