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17/ENG04/038

flect / flect .

Matlab Code .

Command Window

clear

clc

format long

v = 0.5

for i = 1:100

$v(i+1) = \text{sqrt}(((500 + (\log(v(i))) * 3) * (30.3 + (0.020 * v(2)))) / 0.3)$

$ea(i+1) = \text{abs}((v(i+1) - v(i)) / v(i+1)) * 100;$

if  $ea(i+1) <= 1E-11$

break

end

[star v ea]

Plot [v, star]

axis tight

grid on

grid minor

Iter	v	La
0	0.5	0
1	239.05	99.791
2	294.19	18.734
3	302.16	2.7815
4	303.85	0.4094
5	304.04	0.060153
6	304.06	0.002291
7	304.07	0.0012944
8	304.07	0.0012944
9	304.07	0.0012944

Converging at iter = 7 give  $v = 304.07$

∴ The converging value is seen to be 304.07

$$I_d = \frac{0.3v^2}{50 + (10v)^3} - 0.02v$$

If  $v = 304.07$

$$I_{d0} = 9.8 \times 9.8 = 34.30$$

$$= \frac{0.3 \times (304.07)^2}{50 + (10 \times 304.07)^3} - 0.2(304.07)$$

$$= 34.25$$

$$\approx 34.30$$

↪