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 CHEMICAL ENGINEERING
 ENG 381

Assignment 1

Command Window

Clear

CIC

Format Short

v = 0.5

m = 3.5

g = 98

F = m + g

$y = \text{sqrt}(cc(F + (0.0 + v) * ((\log(v))^3)) + (10 + v) + 1750) / 0.3);$

for p = 1: inf

iter(i+1) = i

$y(i+1) = \text{sqrt}(cc(F + (0.024 * v(i)) * (\log(v(i))^3)) + (10 + v(i)) + 1750)$

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

If Eq(i+1) < 1e-11

break

end

end

table = table(Iter; 'v', 'Ea',

OUTPUT

Iter

OUTPUT

Iter	v	Ea
0	0.5	0
1	239.05	97.791
2	294.17	18.736
3	302.61	2.7894
4	303.85	0.40992
5	304.04	0.060144

6	304.04	-0.06144
7	304.06	0.008822
8	304.07	0.0012941
9	304.07	2.7428 ⁻⁰⁵
10	304.07	4.08338 ⁻⁰⁸
11	304.07	8.78658 ⁻⁰⁸
12	304.07	1.28888 ⁻⁰⁸
13	304.07	1.89048 ⁻⁰⁹
14	304.07	2.72278 ⁻¹⁰
15	304.07	4.06798 ⁻¹¹
16	304.07	5.96358 ⁻¹²

Converging at $t=7$; $V=304.07$

$$P_{\text{bond}}(v, 0) + (1 + i)^n (v, 0) + (v + 0.07) + (v + 0.07) + \dots$$

$$F_A = 0.3v^2$$

$$500(1 + i)^3$$

If $v = 304.07$

Recall $F_A = 9.8 \times 3.5 = 34.30$

Substituting $v = 304.07$

$$F_A = 0.3 \times (304.07)^2 = 0.02(304.07) = (1 + i)^3$$

$$500 + \ln(304.07)^3$$

$$F_A = 40.38195931 - 600814$$

$$F_A = 34.3$$