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 Mechanical Engineering  
 17/ENIG06/011  
 ENIG 332 Assignment

1) Command window

clear  
 clc  
 format short

V = 0.5  
 m = 3.5

l = 9.8  
 F = m \* g

V = Synt ccccf + c0.02 \* v) clog (w (3)) \* (c0 \* v) \* (1500/60)

for i = 1 : nP  
 iter C(i,t,i) : i

V C(i,t,i) = Synt (ccccf + c0.02 \* v C(i,t,i)) \* (clog (w (3)) \* (c0 \* v C(i,t,i)) \* (1500/60)

Ea C(i,t,i) = a65 (ccccv C(i,t,i) - v C(i,t,i)) / (v C(i,t,i)) \* 100

if Ea C(i,t,i) < = 75 - 77  
 break  
 end  
 end

table = table C(iter, i, Ea')

Output

Iter	V	Ea
0	0.5	0
1	0.3905	99.791
2	0.29417	18.736
3	0.20261	2.7894
4	0.20285	0.40992
5	0.20404	0.060144
6	0.20406	0.0088222

7	204.07	0.0012941
8	204.07	0.00018981
9	204.07	2.7842 e - 05
10	204.07	4.0838 e - 06
11	204.07	8.7865 e - 08
12	204.07	1.2888 e - 08
13	204.07	1.8904 e - 09
14	204.07	2.7727 e - 10
15	204.07	4.0679 e - 11
16	204.07	5.9635 e - 12

Convergence of iter = 7 ;  $V = 204.07$

Prove

$$F_A = \frac{0.3V^2}{5004 (mV)^3} = 0.02V$$

if  $V = 204.07$

Recall  $F_A = 9.8 \times 2.5 = 34.30$

Substituting  $V = 204.07$

$$F_A = \frac{0.3 \times (204.07)^2}{5004 (mV)^3} = 0.02 (204.07)$$

$$F_A = 40.28195921 = 6.0814$$

$$F_A = 34.3$$