

Eng 384

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Assignment 1

Command window

clear

clc

format short

v=0.5

m=3.5

q=9.8

F=mat q

v = sqrt(((C \* F + (0.02 \* v(i))) \* (log(v(i)))^3) +  
(C \* v(i)) + 1750 \* 10^3)) \* i

for i = 1:inf

iter(i+1) = i

v(i+1) = sqrt(((C \* F + (0.02 \* v(i))) \* (log(v(i)))^3) +  
(C \* v(i)) + 1750 \* 10^3)) \* i

+ C \* v(i)) + 1750 \* 10^3)) \* i

if log(v(i)) <= 1E-11

break

end



Table 2: Table ( $C_{hr}$ ,  $V$ ,  $E_a$ )

output

iter	$V$	$E_a$
0	0.5	0
1	239.08	99.791
2	294.17	18.736
3	302.61	2.389
4	<del>303.85</del>	0.40992
5	304.04	0.060144
6	304.07	0.008822
7	304.07	0.001294
8	304.07	0.00018981
9	304.07	2.7842e-05
10	304.07	4.0838e-06
11	304.07	8.7865e-08
12	304.07	1.288e-08
13	304.07	1.5904e-09
14	304.07	8.7227e-10
15	304.07	4.067e-11
16	304.07	5.9635e-12



Confirming force  $v = 304.07$

Force

$$F_A = 0.3 \sqrt{\frac{5004 C (v)}{v}} = 0.52 v$$

$$\text{if } v = 304.07$$

$$\text{Recall } F_A = 9.8 \times 3.5 = 34.30$$

Substituting  $v = 304.07$

$$F_A = \frac{0.3 \times (304.07)^2}{500 + C (304.07)} = 0.52 (304.07)$$

$$F_A = 34.3$$