ADENIYI TOHEEB
17/ENG02/006
COMPUTER ENGINEERING

ENG 382 ASSIGNMENT

```
Command Window
Clear
CLC
Format Short
V=0.5
m=3.5
g=9.8
F=m*g
V=sqrt((((F+(0.02*V))*(log(V)^3))+(10*V)+17150)/0.3);
for i=1:inf
iter(i+1)=i
V(i+1)=sqrt((((F+(0.02*V(i)))*(log(V(i)))^3)+(10*V(i))+17150)/0.3);
Ea(i+1)=abs(((V(i+1)-V(i))/V(i+1))*100);
IF Ea(i+1)<=1E-11
break
end
end
Table=table(iter',V',Ea')
```

OUTPUT

iter	V	Ea
0	0.5	0
1	239.05	99.791
2	294.17	18.736
3	302.61	2.7894
4	303.85	0.40892
5	304.04	0.060144
6	304.06	0.0088222
7	304.07	0.0012941
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	1.2888e-08
13	304.07	1.8904e-09
14	304.07	2.7727e-10
15	304.07	4.0679e-11
16	304.07	5.9635e-12

Coverging At iter = 7 ; V = 304.07

Prover

$$F_D = \frac{0.3V^2}{500 + (\ln V)^3} - 0.02V$$

If $V = 304.07$

Recall $F_D = 9.8 \times 3.5 = 34.30$

Substituting $V = 304.07$

$$F_D = \frac{0.3 \times (304.07)^2}{500 + (\ln (304.07))^3} - 0.02(304.07)$$

$F_D = 40.38195931 - 660814$

$F_D = 34.34$