

16	304.7	$5.7635 \times 10^{-12}$
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Converging at iter  $\geq 7$ ,  $v = 304.07$

Proof

$$\hat{r} = \frac{0.3v^2}{500 + (\ln v)^3} - 0.02v$$

If  $v = 304.07$

Recall  $\hat{r}_D = 9.8 \times 3.5 = 34.30$

Substituting  $v = 304.07$

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

$$\hat{r}_D = 40.38195931 - 6.0814$$

$$= 34.3006 //$$

End  
 table = table(Iter, v,  $\epsilon_n$ )

OUTPUT

iter	v	$\epsilon_n$
0	0.5	0
1	239.05	99.791
2	294.17	18.736
3	302.61	2.7894
4	303.85	0.40992
5	304.04	0.060144
6	304.06	0.0088222
7	304.07	0.0012941
8	304.07	0.00018941
9	304.07	2.7842 $\times 10^{-5}$
10	304.07	4.0838 $\times 10^{-6}$
11	304.07	8.7865 $\times 10^{-8}$
12	304.07	1.2888 $\times 10^{-8}$
13	304.07	1.8904 $\times 10^{-9}$
14	304.07	2.7727 $\times 10^{-10}$
15	304.07	4.0679 $\times 10^{-11}$

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Assignment 1

Command window

clear

clc

format short

v = 0.5

m = 3.5

g = 9.8

F = m \* g

$$V = \sqrt[3]{((CF + (0.02 * y)) * (\log(V^2.5)) + (10 * v) + 17150) / 0.3}$$

for i = 1: int

iter (i+1) = i

$$V(i+1) = \sqrt[3]{((CF + (0.02 * v(i))) * (\log(V(i)))^2.5) + (10 * v(i)) + 17150 / 0.3)}$$

$$E_q(i+1) = \text{abs}(((V(i+1) - V(i)) / V(i+1)) * 100)$$

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

break

end