**PETROLEUM ENGINEERING**

**ENG 382**

**ASSIGNMENT 1**

1. commandwindow
2. clear
3. clc
4. close all
5. format short g
6. syms v
7. v = 0.5;
8. for i= 1:inf %fixed point iteration to the least possible percentage error
9. iter(i+1) =i;
10. v(i+1)=sqrt(10/3\*(34.3+0.02\*v(i)) \* (500+

(log(v(i))) ^3));

1. Err(i+1) = abs((v(i+1)-v(i))/v(i+1)) \*100;
2. if Err(i+1) <=1E-11
3. break
4. end
5. end
6. table (iter’, v’, Err’) %displaying results as a table

**Commandwindow**

ans =

18×3 table

Var1 Var2 Var3

\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

1. 0.5 0
2. 239.05 99.791
3. 294.17 18.736
4. 302.61 2.7894
5. 303.85 0.40992
6. 304.04 0.060144
7. 304.06 0.0088222
8. 304.07 0.0012941
9. 304.07 0.00018981
10. 304.07 2.7842e-05
11. 304.07 4.0838e-06
12. 304.07 5.9902e-07
13. 304.07 8.7865e-08
14. 304.07 1.2888e-08
15. 304.07 1.8904e-09
16. 304.07 2.7729e-10
17. 304.07 4.0679e-11
18. 304.07 5.9635e-12 Therefore, the terminal velocity is 304.07 m/s