BULLEM, FLORENCE ILUEH-OCHUWEH

16/ENG01/005

CHEMICAL ENGINEERING

ASSIGNMENT 1

```
commandwindow
clear
clc
format short g
v = 0.5
v = sqrt((((34.3 + (0.02*v))*((log(v))^3)) + (10*v) + 17150)/0.3)
v = sqrt((((34.3 + (0.02*v))*((log(v))^3)) + (10*v) + 17150)/0.3)
v = sqrt((((34.3 + (0.02*v))*((log(v))^3)) + (10*v) + 17150)/0.3)
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v = sqrt((((34.3 + (0.02*v))*((log(v))^3)) + (10*v) + 17150)/0.3)
v =


          0.5

v =


       239.05

v =


       294.17

v =


       302.61

v =


       303.85

v =


       304.04


v =


       304.06
```

```
v =

       304.07

v =

       304.07

v =

       304.07

v =

       304.07

v =

       304.07
```

```
for i = 1:inf
    iter(i+1) = i
    v(i+1) = sqrt((((34.3 + (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
iter'
v'
Ea'
tablo = table(iter',v',Ea')
```

```
iter =

     0     1


v =

          0.5       239.05


Ea =

            0       99.791


iter =

     0     1     2
```

```
v =

          0.5       239.05       294.17

Ea =

            0       99.791       18.736

iter =

     0     1     2     3

v =

          0.5       239.05       294.17       302.61

Ea =

            0       99.791       18.736       2.7894

iter =

     0     1     2     3     4

v =

          0.5       239.05       294.17       302.61       303.85

Ea =

            0       99.791       18.736       2.7894      0.40992

iter =

     0     1     2     3     4     5

v =

          0.5       239.05       294.17       302.61       303.85
304.04

Ea =

            0       99.791       18.736       2.7894      0.40992
0.060144
```

```
iter =

     0     1     2     3     4     5     6

v =

          0.5       239.05       294.17       302.61       303.85
304.04       304.06

Ea =

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222

iter =

     0     1     2     3     4     5     6     7

v =

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07

Ea =

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941

iter =

     0     1     2     3     4     5     6     7     8

v =

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07

Ea =

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981

iter =

     0     1     2     3     4     5     6     7     8     9
```

```
v =

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07


Ea =

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05


iter =

     0     1     2     3     4     5     6     7     8     9    10


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Column 11

       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Column 11

   4.0838e-06


iter =

     0     1     2     3     4     5     6     7     8     9    10    11


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 12

       304.07       304.07
```

```
Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 12

   4.0838e-06   5.9902e-07


iter =

     0     1     2     3     4     5     6     7     8     9    10    11
12


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 13

       304.07       304.07       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 13

   4.0838e-06   5.9902e-07   8.7865e-08


iter =

     0     1     2     3     4     5     6     7     8     9    10    11
12    13


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 14
```

```
       304.07       304.07       304.07       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 14

   4.0838e-06   5.9902e-07   8.7865e-08   1.2888e-08


iter =

     0     1     2     3     4     5     6     7     8     9    10    11
12    13    14


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 15

       304.07       304.07       304.07       304.07       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 15

   4.0838e-06   5.9902e-07   8.7865e-08   1.2888e-08   1.8904e-09


iter =

     0     1     2     3     4     5     6     7     8     9    10    11
12    13    14    15


v =

  Columns 1 through 10
```

```
          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 16

       304.07       304.07       304.07       304.07       304.07
304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 16

   4.0838e-06   5.9902e-07   8.7865e-08   1.2888e-08   1.8904e-09   2.7729e-
10


iter =

     0     1     2     3     4     5     6     7     8     9    10    11
12    13    14    15    16


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 17

       304.07       304.07       304.07       304.07       304.07
304.07       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 17

   4.0838e-06   5.9902e-07   8.7865e-08   1.2888e-08   1.8904e-09   2.7729e-
10    4.066e-11


iter =
```

```
     0     1     2     3     4     5     6     7     8     9    10    11
12    13    14    15    16    17


v =

  Columns 1 through 10

          0.5       239.05       294.17       302.61       303.85
304.04       304.06       304.07       304.07       304.07

  Columns 11 through 18

       304.07       304.07       304.07       304.07       304.07
304.07       304.07       304.07


Ea =

  Columns 1 through 10

            0       99.791       18.736       2.7894      0.40992
0.060144    0.0088222    0.0012941   0.00018981   2.7842e-05

  Columns 11 through 18

   4.0838e-06   5.9902e-07   8.7865e-08   1.2888e-08   1.8904e-09   2.7729e-
10    4.066e-11   5.9822e-12


ans =

     0
     1
     2
     3
     4
     5
     6
     7
     8
     9
    10
    11
    12
    13
    14
    15
    16
    17


ans =

          0.5
       239.05
       294.17
```

```
       302.61
       303.85
       304.04
       304.06
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
       304.07
```

```
ans =

            0
       99.791
       18.736
       2.7894
      0.40992
     0.060144
    0.0088222
    0.0012941
   0.00018981
   2.7842e-05
   4.0838e-06
   5.9902e-07
   8.7865e-08
   1.2888e-08
   1.8904e-09
   2.7729e-10
    4.066e-11
   5.9822e-12
```

```
tablo =

  18×3 table

    Var1     Var2        Var3
    ____    ______    __________

      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     0.00018981
      9     304.07     2.7842e-05
     10     304.07     4.0838e-06
```

11	304.07	5.9902e-07
12	304.07	8.7865e-08
13	304.07	1.2888e-08
14	304.07	1.8904e-09
15	304.07	2.7729e-10
16	304.07	4.066e-11
17	304.07	5.9822e-12