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- image
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- MathCAD15Extracted
- MATLABR218aExtracted

Details

Workspace

Name	Value
mdata	251x2 double
x	125x1 double
y	125x1 double

Command Window

New to MATLAB? See resources for [Getting Started.](#)

```

999.9637
999.9671
999.9703
999.9731
999.9757
999.9780
999.9801
999.9820
999.9837
999.9852
999.9866
999.9879
999.9891
999.9901
999.9910
999.9919
999.9927
999.9934
999.9940
999.9946
999.9951
999.9956
999.9960
999.9964
999.9967
    
```

fx >>

Editor - C:\Users\ITUA\Documents\MATLAB\quizhome.m

onlineassignment4.m pastquestionpractice1.m homepractice1.m quizhome.m

```

1 - commandwindow
2 - clc
3 - close all
4 - mdata=xlsread('onlinequizdata','fluiddata')
5 - x=mdata(1:2:250,1)
6 - y=mdata(1:2:250,2)
7 - plot(x,y)
8 - grid on
9 - grid minor
10
11
    
```

Activate Windows
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Windows taskbar with icons for File Explorer, Edge, MATLAB, and system tray showing time 9:54 AM and date 27/04/2020.

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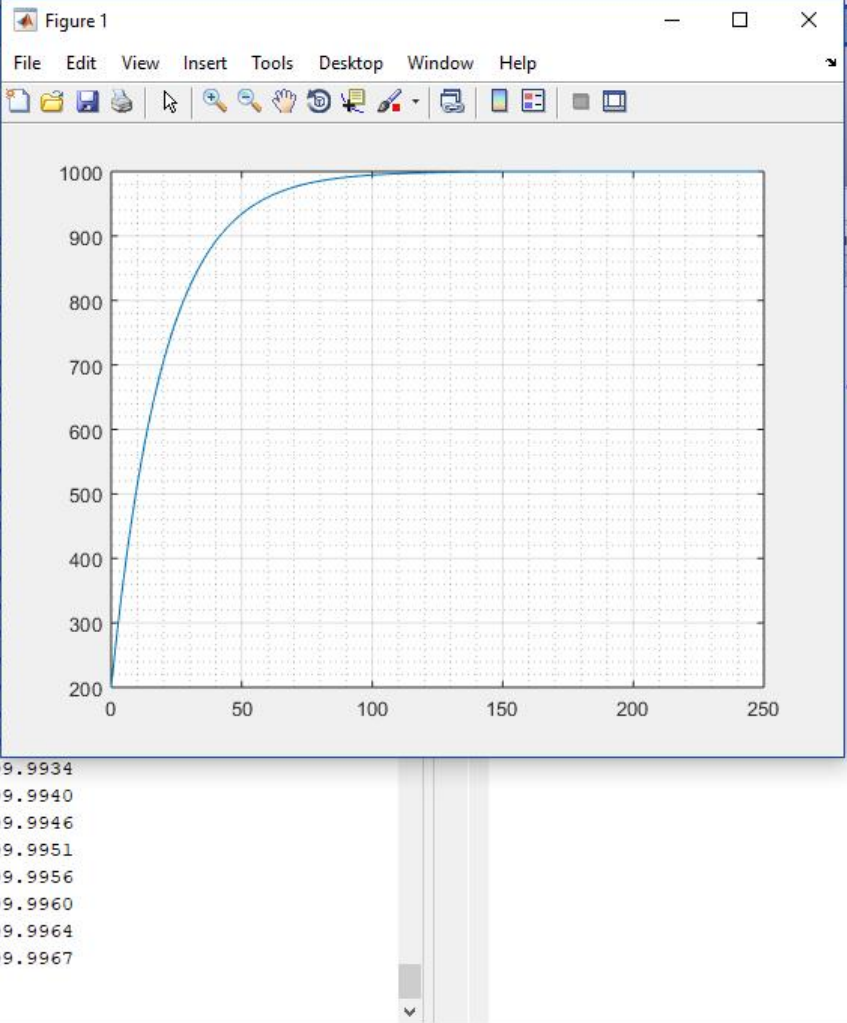
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izhome.m

practice1.m x homepractice1.m x quizhome.m x +

```
ata', 'fluiddata')
```

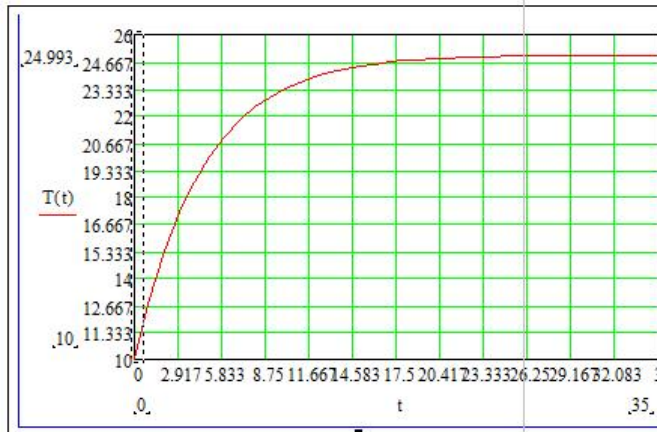
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t := 0..35

T(t) := -15 * exp(-0.2197 * t) + 25

T(t) =

10
12.959
15.334
17.24
18.771
19.999
20.986
21.778
22.413
22.923
23.333
23.662
23.926
24.138
24.308
...



Calculator

sin cos tan ln log
 n! i |x| √ √ⁿ
 e^x 1/x () x² x^y
 π 7 8 9 /
 1/4 4 5 6 ×
 ÷ 1 2 3 +
 := . 0 - =

Graph

Plotting and graphing tools including axes, grid, and data series options.

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CHEMICAL ENGI.

QUIZ.

T_0 of the environment is 25°C

$$\frac{dT}{dt} = k(T-25).$$

$$\int \frac{dT}{(T-25)} = \int dt k.$$

$$\ln(T-25) = kt + C.$$

$$T-25 = e^{kt+C}$$

$$T-25 = e^{kt} \cdot e^C$$

$$T-25 = T_0 e^{kt}$$

$$T = T_0 e^{kt} + 25$$

At $t=0$; $T=10^\circ\text{C}$

$$10 = T_0 e^{k \cdot 0} + 25.$$

$$10 = T_0 + 25$$

$$10 - 25 = T_0$$

$$\therefore T_0 = -15^\circ\text{C}.$$

$$\therefore T = -15e^{kt} + 25$$

but when $t=5$ mins, $T=20^\circ\text{C}$.

$$20 = -15e^{k \cdot 5} + 25$$

$$20 - 25 = -15e^{k \cdot 5}$$

$$\frac{-5}{-15} = \frac{-15e^{k \cdot 5}}{-15}$$

$$\frac{1}{3} = e^{k \cdot 5}$$

$$0.33 = e^{k \cdot 5}$$

$$\ln 0.33 = \frac{k \cdot 5}{5}$$

$$k = -0.21972 \approx -0.2197$$

$$\therefore T = -15e^{-0.2197t} + 25^\circ\text{C}$$

Then to find t at $T=24.9^\circ\text{C}$

$$24.9^\circ\text{C} = -15e^{-0.2197t} + 25^\circ\text{C}$$

$$24.9^\circ\text{C} - 25^\circ\text{C} = -15e^{-0.2197t}$$

$$-0.1 = -15e^{-0.2197t}$$

$$\frac{-0.1}{-15} = e^{-0.2197t}$$

$$6.67 \times 10^{-3} = e^{-0.2197t}$$

$$\ln 6.67 \times 10^{-3} = -0.2197t$$

$$\frac{-5.010}{-0.2197} = \frac{-0.2197t}{-0.2197}$$

$$t = 22.80 \text{ mins}$$