



```
- commandwindow
- clear
- clc
- close all
- format short g
- mdata=xlsread('onlinequizdata','fluiddata')
- x=mdata(1:2:250,1)
- y=mdata(1:2:250,2)
- plot(x,y)
- grid on
- grid minor
```

I

Command Window

86  
88  
90  
92  
94  
96  
98  
100  
102

script

Ln 11 Col 11

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18/ENG01/002

CHEMICAL ENGINEERING

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

$$dT = kdt$$

$$(T-25)$$

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

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

$$T = T_0 e^{kt} + 25 \quad \dots \textcircled{1}$$

$$t=0 \quad T=10$$

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

$$10 - 25 = T_0$$

$$T_0 = -15 \quad \text{put } T_0 = -15 \text{ in } \textcircled{1}$$

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

$$\text{at } t=5 \text{ and } T=20$$

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

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

$$-5 = -15e^{5k}$$

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

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

$$-1.09 = 5k$$

$$k = -0.219$$

$$T = -15e^{-0.219t} + 26$$