

Bassey Joy. A. Chemical Engineering

18/EMG01004

$$1) \frac{dT}{dt} = k(T-25)$$

dt

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

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

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

$$T = T_0 e^{kT}$$

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

$$\text{At } t = 0$$

$$10 = T_0 + 25$$

$$10 - 25 = T_0$$

$$T_0 = -15$$

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

$$20 = -15e^{kT} + 25$$

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

$$0.33 = e^{k5}$$

$$-1.09 = k5$$

$$k = -0.219$$

$$T = -15e^{-0.219t} + 25$$

```
joyquiz.m x +  
1 - commandwindow  
2 - clear  
3 - clc  
4 - close all  
5 - format short g  
6 - mdata=xlswread('onlinequizdata','fluiddata')  
7 - x=mdata(1:2:250,1)  
8 - y=mdata(1:2:250,2)  
9 - plot(x,y)  
10 - grid on  
11 - grid minor  
  
I
```

