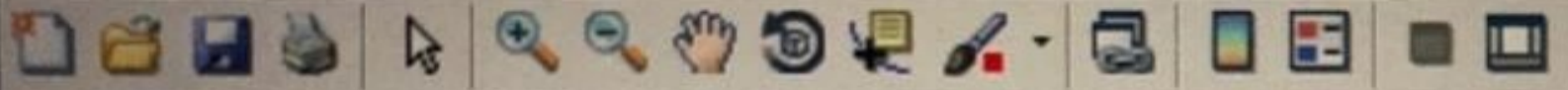


Comment

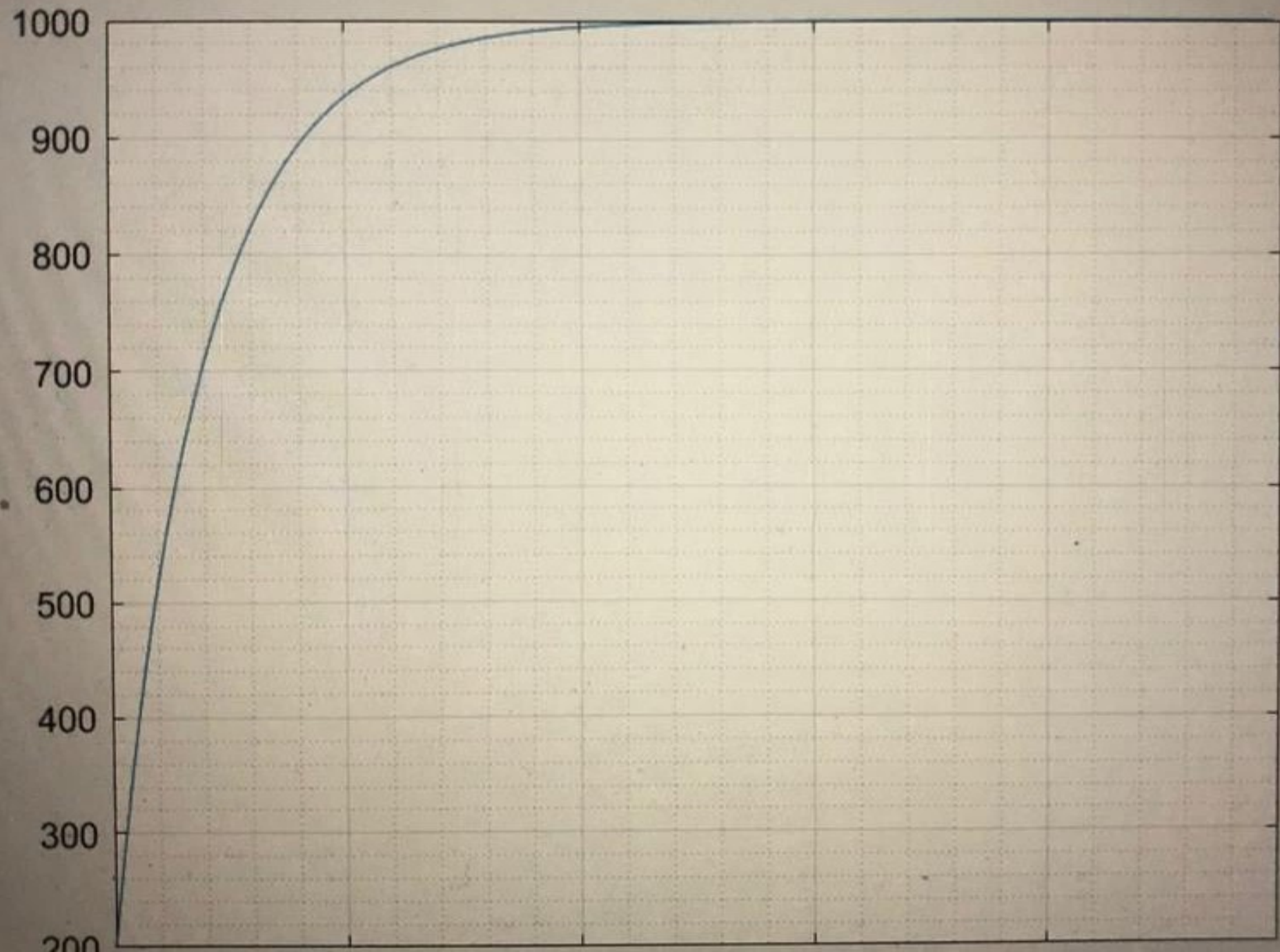


Indent

ts ▶ MATI

Ed
yi

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



```
- 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

Noachetta Kenechukwu 18/ENG03/040 Civil Engr

$$T_{\text{initial}} = 10^{\circ}\text{C}$$

$$T = 20 \text{ mins}$$

at 5 mins

$$T_A = 25$$

$$\frac{dT}{dt} \propto (T - T_A)$$

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

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

$$(T - 25)$$

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

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

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

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

when $t = 0$

$$10 = T_0 = e^{k(0)} + 25$$

$$10 = T_0 = 1 + 25$$

$$T_0 = 10 - 25 = -15$$

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

For 5 mins

$$T = 20 \quad k = ?$$

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

$$20 - 25 = -15e^{kt}$$

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

$$0.333 = e^{kt}$$

$$-1.108 = e^{5k}$$

$$k = -0.219$$

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

$$T = 24.9$$

$$24.9 = -15e^{-0.219t} + 25$$

$$24.9 - 25 = -15e^{-0.219t}$$

$$-0.1 = -15e^{-0.219t}$$

$$e^{-0.219t} = 0.06667$$

$$-0.219t = -5.01$$

$$t = 22.87$$