

Owolabi Tomisin

16/ENG004/047

Elect/Elect

ASSIGNMENT 3

$$I_1 + I_2 - 2I_3 + I_4 + 3I_5 - I_6 = 4$$

$$2I_1 - I_2 + I_3 + 2I_4 + I_5 - 3I_6 = 20$$

$$I_1 + 3I_2 - 3I_3 - I_4 + 2I_5 + I_6 = -15$$

$$5I_1 + 2I_2 - I_3 - I_4 + 2I_5 + I_6 = -3$$

$$-3I_1 - I_2 + 2I_3 + 3I_4 + I_5 + 3I_6 = 16$$

$$4I_1 + 3I_2 + I_3 - 6I_4 - 3I_5 - 2I_6 = -27$$

1	1	-2	1	3	-1	I_1	4
2	-1	1	2	1	-3	I_2	20
1	3	-3	-1	2	+1	I_3	-15
5	2	-1	-1	2	+1	I_4	-3
-3	-1	2	3	1	+3	I_5	16
4	3	1	-6	-3	-2	I_6	-27

1	1	-2	1	3	-1		4
$2 - (2/x)$	$-1 - (2/x)$	$1 - (2/x)$	$2 - (2/x)$	$3 - (2/x)$	$-3 - (2/x)$		$20 - (2/x)$
$1 - (1/x)$	$3 - (1/x)$	$-3 - (1/x)$	$-1 - (1/x)$	$2 - (1/x)$	$1 - (1/x)$		$-15 - (1/x)$
$5 - (5/x)$	$2 - (5/x)$	$-1 - (5/x)$	$-1 - (5/x)$	$2 - (5/x)$	$1 - (5/x)$		$-3 - (5/x)$
$-3 - (-3/x)$	$-1 - (-3/x)$	$2 - (-3/x)$	$3 - (-3/x)$	$1 - (-3/x)$	$3 - (-3/x)$		$16 - (-3/x)$
$4 - (4/x)$	$3 - (4/x)$	$1 - (4/x)$	$-6 - (4/x)$	$-3 - (4/x)$	$-2 - (4/x)$		$-27 - (4/x)$

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	2	-1	-2	-1	2	-19
0	-3	9	-6	-13	6	-23
0	2	-4	6	10	0	28
0	-1	9	-10	15	2	-43

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	$2 - \frac{2}{3}x - 3$	$-1 - \frac{2}{3}x + 5$	$-2 - \frac{2}{3}x + 0$	$-1 - \frac{2}{3}x - 5$	$2 - \frac{2}{3}x - 1$	$-19 - \frac{2}{3}x + 12$
0	$-3 - \frac{2}{3}x - 3$	$9 - \frac{2}{3}x + 5$	$-6 - \frac{2}{3}x + 0$	$-13 - \frac{2}{3}x - 5$	$6 - \frac{2}{3}x - 1$	$-23 - \frac{2}{3}x + 12$
0	$2 - \frac{2}{3}x - 3$	$-4 - \frac{2}{3}x + 5$	$6 - \frac{2}{3}x + 0$	$-10 - \frac{2}{3}x - 5$	$0 - \frac{2}{3}x - 1$	$28 - \frac{2}{3}x + 12$
0	$-1 - \frac{2}{3}x - 3$	$9 - \frac{2}{3}x + 5$	$-10 - \frac{2}{3}x + 0$	$-15 - \frac{2}{3}x - 5$	$0 - \frac{2}{3}x - 1$	$-43 - \frac{2}{3}x + 12$

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	0	$\frac{7}{3}$	-2	$-\frac{13}{3}$	$\frac{4}{3}$	-11
0	0	4	-6	-8	7	-35
0	0	$-\frac{2}{3}$	6	$\frac{20}{3}$	$-\frac{2}{3}$	36
0	0	$\frac{22}{3}$	-10	$-\frac{40}{3}$	$\frac{7}{3}$	47

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	0	$\frac{7}{3}$	-2	$-\frac{13}{3}$	$\frac{4}{3}$	-11
0	0	$4 - (\frac{12}{7}x + \frac{7}{3})$	$-6 - (\frac{12}{7}x - 2)$	$-8 - (\frac{13}{7}x + \frac{13}{3})$	$7 - (\frac{12}{7}x + \frac{4}{3})$	$-35 - (\frac{12}{7}x - 11)$
0	0	$-\frac{2}{3} - (\frac{6}{21}x + \frac{7}{3})$	$6 - (\frac{6}{21}x - 2)$	$\frac{20}{3} - (\frac{6}{21}x - \frac{13}{3})$	$-\frac{2}{3} - (\frac{6}{21}x + \frac{4}{3})$	$36 - (\frac{6}{21}x - 11)$
0	0	$\frac{22}{3} - (\frac{22}{7}x + \frac{7}{3})$	$-10 - (\frac{22}{7}x - 2)$	$-\frac{40}{3} - (\frac{22}{7}x + \frac{13}{3})$	$\frac{7}{3} - (\frac{22}{7}x + \frac{4}{3})$	$37 - (\frac{22}{7}x - 11)$

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	0	$\frac{7}{3}$	-2	$-\frac{13}{3}$	$\frac{4}{3}$	-11
0	0	0	$-\frac{18}{7}$	$-\frac{4}{7}$	$\frac{33}{7}$	$-\frac{113}{7}$
0	0	0	$\frac{38}{7}$	$\frac{38}{7}$	$-\frac{2}{7}$	$+\frac{230}{7}$
0	0	0	$-\frac{26}{7}$	$\frac{2}{7}$	$-\frac{13}{7}$	$-\frac{87}{7}$

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
0	0	$\frac{7}{3}$	-2	$-\frac{13}{3}$	$\frac{4}{3}$	-11
0	0	0	$-\frac{18}{7}$	$-\frac{4}{7}$	$\frac{33}{7}$	$-\frac{133}{7}$
0	0	0	$\frac{38}{7} - (\frac{38}{18}x - \frac{18}{7})$	$\frac{38}{7} - (\frac{38}{18}x - \frac{4}{7})$	$-\frac{2}{7} - (\frac{38}{18}x + \frac{23}{7})$	$+\frac{230}{7} - (\frac{38}{18}x - \frac{113}{7})$
0	0	0	$-\frac{26}{7} - (\frac{26}{18}x - \frac{18}{7})$	$\frac{2}{7} - (\frac{26}{18}x - \frac{4}{7})$	$-\frac{13}{7} - (\frac{26}{18}x + \frac{33}{7})$	$-\frac{87}{7} - (\frac{26}{18}x - \frac{113}{7})$

1	1	-2	1	3	-1		4
0	-3	5	0	-5	-1		12
0	0	7/3	-2	-13/3	4/3		-11
0	0	0	-18/7	-4/7	33/7		-113/7
0	0	0	0	38/9	29/3		-11/9
0	0	0	0	10/9	-26/3		98/9

1	1	-2	1	3	-1		4
0	-3	5	0	5	-1		12
0	0	7/3	-2	-13/3	4/3		-11
0	0	0	-18/7	-4/7	33/7		-113/7
0	0	0	0	38/9	29/3		-11/9
0	0	0	0	10/9	-26/3	$(\frac{5}{19} \times \frac{38}{9})$	$98/9 - (\frac{5}{19} \times \frac{11}{9})$

1	1	2	1	3	-1		4
0	-3	5	0	5	-1		12
0	0	7/3	-2	-13/3	4/3		-11
0	0	0	18/7	4/7	33/7		-113/7
0	0	0	0	38/9	29/3		-11/9
0	0	0	0	0	-213/19		213/19

1	1	2	1	3	-1	T_1	4	4
0	-3	5	0	5	-1	T_2	20	12
0	0	7/3	-2	-13/3	4/3	T_3	-11	-11
0	0	0	18/7	4/7	33/7	T_4	-113/7	-113/7
0	0	0	0	38/9	29/3	T_5	-11/9	-11/9
0	0	0	0	0	-213/19	T_6	-213/19	213/19

$1xT_1 + 1xT_2 + 2xT_3 + 1xT_4 + 3xT_5 + -1xT_6$ 4 4
 $0xT_1 + 3xT_2 + 5xT_3 + 0xT_4 + 5xT_5 + -1xT_6$ 22 12
 $0xT_1 + 0xT_2 + 7/3xT_3 + -2xT_4 + -13/3xT_5 + 4/3xT_6$ -11 -11
 $0xT_1 + 0xT_2 + 0xT_3 + 18/7xT_4 + 4/7xT_5 + 33/7xT_6$ -113/7
 $0xT_1 + 0xT_2 + 0xT_3 + 0xT_4 + 38/9xT_5 + 29/3xT_6$ -11/9
 $0xT_1 + 0xT_2 + 0xT_3 + 0xT_4 + 0xT_5 + -213/19xT_6$ 213/19

$$-213 \bar{T}_6 = 213$$

$$19 \quad 19$$

$$\bar{T}_6 = 213 \times -19$$

$$19 \quad 213 = -1$$

$$\Rightarrow \frac{38 \bar{T}_5 + 29(-1)}{9 \quad 3 \quad 9} = \frac{-11}{9}$$

~~$\bar{T}_5 = \dots$~~

$$\frac{38 \bar{T}_5 + 29(-1)}{9 \quad 3 \quad 9} = \frac{-11}{9}$$

$$\bar{T}_5 = 1.0673$$

$$\frac{18 \bar{T}_4 + 4(1.0673) + (-33)}{7 \quad 7 \quad 7} = \frac{-113}{7}$$

$$\bar{T}_4 = -18.213$$

$$\bar{T}_3 = -2 + 058$$

$$\bar{T}_2 = -29.542$$

$$\bar{T}_1 = -0.56231$$

Editor - C:\Users\tomisin\Documents\MATLAB\ass3.m

```

1 -   commandwindow
2 -   clear
3 -   clc
4 -   format short g
5 -   A=[1 1 -2 1 3 -1 ;2 -1 1 2 1 -3 ;1 3 -3 -1 2 1 ;5 2 -1 -1 2 1 ;-3 -1 2 3 1 3 ;4 3 1 -6 -3 -2];
6 -   b=[4; 20; -15; -3; 16; -27];
7 -   Aug= [A,b];
8 -   [m,n]= size(Aug);
9 -   for k = 1:n-1
10 -      for i = k+1 :n-1
11 -          if Aug(i,k)~= 0
12 -              q = Aug(i,k)/Aug(k,k);
13 -              Aug(i,k:n) = Aug(i,k:n) - q*Aug(k,k:n)
14 -          end
15 -      end
16 -   end
17 -   X = zeros(m,1)

```

Command Window

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

Aug =

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
1	3	-3	-1	2	1	-15

```
Editor - C:\Users\tomisin\Documents\MATLAB\ass3.m
INTERPOLATION.m x linear.m x Untitled.m x Ass1.m x ass3.m x ass2.m x +
6 - b=[4; 20; -15; -3; 16; -27];
7 - Aug= [A,b];
8 - [m,n]= size(Aug);
9 - for k = 1:n-1
10 -     for i = k+1 :n-1
11 -         if Aug(i,k)~= 0
12 -             q = Aug(i,k)/Aug(k,k);
13 -             Aug(i,k:n) = Aug(i,k:n) - q*Aug(k,k:n)
14 -         end
15 -     end
16 - end
17 - X = zeros(m,1)
18 - X(m) = Aug(m,n)/Aug(m,m)
19 - for k = m-1:-1:1
20 -     X(k) = (Aug(k,n) - (Aug(k,k+1:m)*X(k+1:m)/Aug(k,k)))
21 - end
22 - x=X
```

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

Aug =

1	1	-2	1	3	-1	4
0	-3	5	0	-5	-1	12
1	3	-3	-1	2	1	-15
5	2	-1	-1	2	1	-3

script