

# Matlab-w1

## Questions

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(1) Run the code and observe the output and the results.

```
After elimination in column 1 with pivot = 2.000000
  2.0000   -1.0000    5.0000   10.0000
      0    1.5000   -5.5000   -7.0000
      0    5.0000   -4.0000   -9.0000

After elimination in column 2 with pivot = 1.500000
  2.0000   -1.0000    5.0000   10.0000
      0    1.5000   -5.5000   -7.0000
      0         0   14.3333   14.3333

After back substitution, the solution is:
      2
     -1
      1

>>
```

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## Questions

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(2) Change matrix A and right hand side vector b and run the code. Submit the output.

```
/MATLAB Drive/LinearHW1.m
1 % Define matrix A
2 A = [-2,-1, -2;
3      -3, 1,4;
4      5, 4, -1];
5 % Define vector b
6 b = [ 8;
7      1
8      -4];

Command Window

New to MATLAB? See resources for Getting Started.

>> LinearHW1

Begin forward elimination with Augmented system:
-2   -1   -2    8
-3    1    4    1
 5    4   -1   -4

After elimination in column 1 with pivot = -2.000000
-2.0000   -1.0000   -2.0000    8.0000
 0    2.5000    7.0000   -11.0000
 0    1.5000   -6.0000   16.0000

After elimination in column 2 with pivot = 2.500000
-2.0000   -1.0000   -2.0000    8.0000
 0    2.5000    7.0000   -11.0000
 0         0   -10.2000   22.6000

After back substitution, the solution is:
-2.6863
 1.8039
-2.2157
```

## Questions

(3) Check your result using MATLAB's native linear solver, by running:

```
LinearHW1.m x +
/MATLAB Drive/LinearHW1.m
37
38     x = A\b;
39     fprintf(' x= %f\n', x);
40     |

Command Window

New to MATLAB? See resources for Getting Started.

>> LinearHW1

Begin forward elimination with Augmented system:
-2   -1   -2    8
-3    1    4    1
 5    4   -1   -4

After elimination in column 1 with pivot = -2.000000
-2.0000  -1.0000  -2.0000   8.0000
      0   2.5000   7.0000 -11.0000
      0   1.5000  -6.0000  16.0000

After elimination in column 2 with pivot = 2.500000
-2.0000  -1.0000  -2.0000   8.0000
      0   2.5000   7.0000 -11.0000
      0      0  -10.2000  22.6000

After back substitution, the solution is:
-2.6863
 1.8039
-2.2157

X= -2.686275
X= 1.803922
X= -2.215686
>>
```