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```
close all
clear all
clc
```

```
%Ben Ridenbaugh
%EGR 1101
%HW 4
```

Problem 30

```
a=[1 -3 5;2 2 4;-2 0 6];
b=[0 -2 1;5 1 -6;2 7 -1];
c=[-3 4 -1;0 8 2;-3 5 3];
```

a

```
a*b
b*a
%They are not equal
```

```
ans =
```

```
  -5    30    14
  18    26   -14
  12    46    -8
```

```
ans =
```

```
  -6    -4    -2
  19   -13    -7
```

18	8	32
----	---	----

b

```
a*(b*c)
(a*b)*c
%They are equal
```

```
ans =
```

-27	290	107
-12	210	-8
-12	376	56

```
ans =
```

-27	290	107
-12	210	-8
-12	376	56

c

```
transpose(a*b)
transpose(a)*transpose(b)
%They are not equal
```

```
ans =
```

-5	18	12
30	26	46
14	-14	-8

```
ans =
```

-6	19	18
-4	-13	8
-2	-7	32

d

```
transpose(a+b)
transpose(a)+transpose(b)
%They are equal
```

```
ans =
```

```
1      7      0
-5     3      7
6     -2      5
```

```
ans =
```

```
1      7      0
-5     3      7
6     -2      5
```

Problem 33

```
A=[-4 3 1;5 6 -2;2 -5 4.5];
b=[-18.2;-48.8;92.5];
xyz=A\b
```

```
xyz =
```

```
2.8000
-6.4000
12.2000
```

Problem 34

```
A=[2.5 -1 3 1.5 -2;3 4 -2 2.5 -1;-4 3 1 -6 2; 2 3 1 -2.5 4;1 2 5 -3
4];
b=[57.1;27.6;-81.2;-22.2;-12.2];
abcde=A\b
```

```
abcde =
```

```
8.2000
-2.0000
4.8000
6.0000
-5.6000
```

Extra Problem 1

a

```
A=[100 300;-300 600]
b=[12;-6]
```

$A =$

$$\begin{array}{cc} 100 & 300 \\ -300 & 600 \end{array}$$

$b =$

$$\begin{array}{c} 12 \\ -6 \end{array}$$

b

```
a=A(1,1)
b=A(1,2)
c=A(2,1)
d=A(2,2)
```

$a =$

$$100$$

$b =$

$$300$$

$c =$

$$-300$$

$d =$

$$600$$

c

$dA=a*d-b*c$

$dA =$

$$150000$$

d

$iA=[d \ -b;-c \ a];$

```
invA=(1/dA)*iA
```

```
invA =
```

```
    0.0040    -0.0020  
    0.0020     0.0007
```

e

```
I=invA*b
```

```
I =
```

```
    1.2000    -0.6000  
    0.6000     0.2000
```

Extra Problem 2

```
A=[cosd(23.6) sind(111.2);sind(23.6) cosd(111.2)]  
b=[0;93]  
a=A(1,1)  
b=A(1,2)  
c=A(2,1)  
d=A(2,2)  
dA=a*d-b*c  
iA=[d -b;-c a];  
invA=(1/dA)*iA  
T=invA*b
```

```
A =
```

```
    0.9164     0.9323  
    0.4003    -0.3616
```

```
b =
```

```
     0  
    93
```

```
a =
```

```
    0.9164
```

```
b =
```

0.9323

$c =$

0.4003

$d =$

-0.3616

$dA =$

-0.7046

$invA =$

0.5132 1.3231

0.5682 -1.3005

$T =$

0.4785 1.2336

0.5297 -1.2125

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