

```
%Felix Rohrer
clear
format compact
```

```
%Aufgabe 3.1
A=[1 2; 0 3; 4 1];
B=[1 0 2 1; 3 1 3 -1];
A*B
```

```
ans =
     7     2     8    -1
     9     3     9    -3
     7     1    11     3
```

```
%Aufgabe 3.2
z1=[1 3 5];
z2=[4 6 8];
z1*z2'
z1'*z2
```

```
ans =
    62
ans =
     4     6     8
    12    18    24
    20    30    40
```

```
%Aufgabe 3.3
A=[4 6 pi; 12 sqrt(2) 7];
B=[1 3; 2 4; 3 1];
C=[-1 2; 4 -2; 7 -1];
%a)
B+C
%b)
3*B-C
%c)
A*B
%d)
A'
%e)
(A*B)^2
%f)
B.*C
%g)
log(A)
```

```

ans =
    0     5
    6     2
   10     0
ans =
    4     7
    2    14
    2     4
ans =
   25.4248   39.1416
   35.8284   48.6569
ans =
    4.0000   12.0000
    6.0000    1.4142
    3.1416    7.0000
ans =
  1.0e+003 *
    2.0488    2.8997
    2.6542    3.7699
ans =
   -1     6
    8    -8
   21    -1
ans =
    1.3863    1.7918    1.1447
    2.4849    0.3466    1.9459

```

```

%Aufgabe 3.4
A=[-7 -4; 6 3];
[EV EW]=eig(A)

```

```

EV =
   -0.7071    0.5547
    0.7071   -0.8321
EW =
   -3.0000     0
     0    -1.0000

```

```

%Aufgabe 3.5
A=[-2 0 3; 2 4 0; 1 0 0];
%a)
det(A)
inv(A)
[EV EW]=eig(A)
%b)
det(A)
EW(1,1)*EW(2,2)*EW(3,3)

```

```

ans =
    -12
ans =
     0     0    1.0000
     0    0.2500   -0.5000
    0.3333     0    0.6667
EV =
     0   -0.9156   -0.6396
    1.0000    0.2616    0.4264
     0    0.3052   -0.6396
EW =
    4.0000     0     0
     0   -3.0000     0
     0     0    1.0000
ans =
    -12
ans =
   -12.0000

```

```

%Aufgabe 3.6
A=[-1 4 6; 3 0 -1; 2 2 -3];
B=[31; 1; 6;];
det(A)
A\B

```

```

ans =
    62
ans =
    1.0000
    5.0000
    2.0000

```