Ćwiczenia 35

1. Stwóz kilka tablic liczb. Zwyczajowo tablice jednowymiarowe nazywamy wektorami, a dwuwymiarowe macierzami. Przeanalizuj instrukcje.

```
a=[2 3 3 4]
b=[2,3,3,4]
a==b
[23]==23
a=[1 2 3]
b=[3 5 6]
a+b
a-b
2*a
a+3
a**3
3**a
//a*b
a.*b
c=[a,b]
d=[a;b]
a(2)
a'
sum(b)
prod(b)
max(b)
min(b)
length(b)
length(d)
e=[0:1:5]
f=[0:2:10]
g=[0:3:10]
h=0:2:8
m=2:.1:3
n=4:9
o=linspace(2,8,5)
sum(a.*b)
a=[1 2; 3 4]
b=[1,1;1,1]
2*b,a+b, a-b, a.*b, a*b
```

```
a=[1 2;3 5]
a(1,2),a(2,1) //a(i,j) = entry in ith row, jth column
a(2,2)=4 //changes a(2,2) to 4
a,a(:,:)
a,a(:,1),a(:,2) //a(:,j)=all rows of jth column=jth column
a,a(1,:),a(2,:) //a(i,:)=all columns of ith row=ith row
a
a(1,2)=10
a(:,2)=[9;9]
```

```
a(1,:)=[0,0]
b
[b,[0;0]] //appends new column on left
[b;[0,0]] //appends new row below
z=b //saves b to z
b(1,:)= b(1,:)+2
b=z //recovers b from z
b(:,1)= b(:,1)-2 //What does this do?

b=ones(1,3)
b=0*b
b=ones(3,1)
b=8*b
I=eye(2,2)

a=[1,2;3,4]
inv(a)
a*inv(a),inv(a)*a
```

2. Utwórz po 100 wyrazów ciągów

- $\frac{1}{n}$
- $\frac{1}{n^2}$
- $\frac{1}{\sqrt{n}}$
- $\sqrt[n]{n}$
- $\left(1+\frac{1}{n}\right)^n$
- $\frac{n^3-2n^2+4}{2n^3+n^2+10n+14}$

3. Oblicz sumy:

- $\sum_{i=1}^{20} \frac{1}{i!}$
- $\sum_{i=1}^{20} \frac{2^i}{i!}$
- $\sum_{i=1}^{40} \frac{(-1)^i}{(2i+1)!}$
- $\sum_{i=1}^{200} \frac{(-1)^i}{i}$
- $\sum_{i=1}^{1000} \frac{1}{i^2}$
- $\sum_{i=1}^{50} \frac{i^2}{2^i}$

Materiały źródłowe:

- http://math.hawaii.edu/~gautier/math_190_lecture_2.pdf
- http://wmii.uwm.edu.pl/~ksopyla/dydaktyka/