Computergestuetzte Mathematik zur Analysis

Lektion 5 (Programmsteuerung)

▼ For Schleifen

```
> liste := [a, b, x+y];
```
Zeilenumbruch mit "Shift" "Enter"
```
> for l in liste do
     l^3;
   od;
```

```
> for j from 4 to 8 do
     j, evalf(sin(Pi/j));
   od;
```

```
> out := 0;
> for le in [1, z, x^2, y^3, 3] do
     out := out+le:
   end do:
   out;
```

▼ Einfache logische Aussagen

```
> a := 3; b := 5;
> a < b;
> evalb(a < b);
> is(a = b);
> is (a<>b);  # a ungleich b,
```
$> is(a \neq b); \quad$ *# a "!=" b # a ungleich in 2D Maple Input*

```
> a := true; b := false; c := true;
> a and b;
> a or b;
> `or`(a, b);
> `xor`(a, b);
```

```
> a := 1+I;
> is(a, real);
> is(a, integer);
> is(a, complex);
> ? property
```

If Abfragen

```
> a := 3; b := 5;
> if b < a then
    a
   else
    b
   end if;

> for j from 4 to 8 do
    j, evalf(sin(Pi/j)):
    if isprime(j) then
      print(j, eval(sin(Pi/j))):
    fi:
   od:
```

While Schleife

```
> q := 1016;
   while type(q, even) do
     q := (1/2)*q
   end do;
   q;
```

Maple Funktionen

```
> restart;
> myfun := proc(x,n,m)
    description "Berechne sin(nx) cos(mx)";
    sin(n*x) * cos(m*x);
   end proc;
>
> myfun2 := proc (x, n, m)
    local a, b;
    description "Berechne sin(nx) cos(mx)";
    a := sin(n*x);
    b := cos(m*x);
    a*b
   end proc;
>
> myfun(x, 2, 3)+1;
> Describe(myfun2);
> myfun(x, 3, 4);
> a;
>
```

```
> divide2s := proc (n)
    local q;
    q := n;
    while type(q, even) do
       q := (1/2)*q
    end do;
    q;
    end proc;
> divide2s(1016);
```