```
> for i from 1 by 1 to 5 do
  print(i);
  end do;
```

$$1$$

$$2$$

$$3$$

$$4$$

$$5$$

```
for i from 2 by 2 to 6 do
Sum(j^i, j=1..n)=expand(sum(j^i, j=1..n));
end do;
```

$$\sum_{j=1}^{n} j^2 = \frac{1}{3} n^3 + \frac{1}{2} n^2 + \frac{1}{6} n$$

$$\sum_{j=1}^{n} j^4 = \frac{1}{5} n^5 + \frac{1}{2} n^4 + \frac{1}{3} n^3 - \frac{1}{30} n$$

$$\sum_{j=1}^{n} j^6 = \frac{1}{42} n - \frac{1}{6} n^3 + \frac{1}{2} n^5 + \frac{1}{2} n^6 + \frac{1}{7} n^7$$

```
> s:=0:
  seznam:=[1,2,3,4,5]:
  for n in seznam do
  if irem(n,2)=0 then s:=s+n^2 fi
  od:
> s;
```

$$20$$

```
> x:=256;
```

$$x := 256$$

```
> while x>1 do x:=x/4 end do;
```

$$x := 64$$

$$x := 16$$

$$x := 4$$

$$x := 1$$

```
> a:=20: b:=12:
  while b<>0 do
   d:=irem(a,b);
   a:=b;
   b:=d;
  end do;
```

$$d := 8$$

$$a := 12$$

$$b := 8$$

$$d := 4$$

$$a := 8$$

$$b := 4$$

$$d := 0$$

$$a := 4$$

$$b := 0$$

```
> lprint(`celociselny NSD je`,a);
```

```
`celociselny NSD je`, 4
```

```
> euclid:=proc(m::posint,n::posint)
  local a,b,r:
  a:=m:
  b:=n:
  r:=irem(a,b):
  while r<>0 do
  a:=b:
  b:=r:
  r:=irem(a,b):
  od:
  b:
  end:
```

```
> euclid(20,12);
```

$$4$$

```
> for i from 3 by 2 do
  if isprime(2^i-1)
  then print(2^i-1,`je prvocislo`)
  else break
  end if
  end do;
```

$$7, \textit{je prvocislo}$$

$$31, \textit{je prvocislo}$$

$$127, \textit{je prvocislo}$$

```
> max3:=proc(a,b,c)
  print(`nalezeni maxima z cisel`, a,b,c);
  if a<b then
   if b<c then c else b end if
   elif a<c then c
   else a
  end if;
```

```
  end:
> max3(3,2,1);
```

nalezeni maxima z cisel, 3, 2, 1

3

```
> save(max3, "max3.txt");
> restart;
> read "max3.txt";
```

max3 := **proc**(*a*, *b*, *c*)

print(`*nalezeni maxima z cisel*`, *a*, *b*, *c*);

if *a* < *b* **then if** *b* < *c* **then** *c* **else** *b* **end if elif** *a* < *c* **then** *c* **else** *a*

end if

end proc

```
> max3(1,2,3);
```

nalezeni maxima z cisel, 1, 2, 3

3

```
> maxN:=proc() local result, i;
  if not (type([args], list(numeric)))
   then return('procname(args)');
   elif nargs>0
   then
   result:=args[1];
   for i from 2 to nargs do
                    if args[i]>result then    result:=
  args[i] fi od;
   result;
  fi;
  end:
> maxN(9,2,3,4,5.0);
```

9

```
%typeset_mode True
```

```
for i in range(1,6):
    print i
```

```
1
2
3
4
5
```

```
var('j,n')
```

(j, n)

```
for i in range(2,7,2):
    sum(j^i, j,1,n)
```

$$\frac{1}{3}n^3+\frac{1}{2}n^2+\frac{1}{6}n$$

$$\frac{1}{5}n^5+\frac{1}{2}n^4+\frac{1}{3}n^3-\frac{1}{30}n$$

$$\frac{1}{7}n^7+\frac{1}{2}n^6+\frac{1}{2}n^5-\frac{1}{6}n^3+\frac{1}{42}n$$

```
s=0;seznam=[1,2,3,4,5];
```

```
for n in seznam:
    if n%2 ==0:
        s=s+n^2
```

```
s
```

20

```
x=256
```

```
while x>1:
    x=x/4
    print(x)
```

```
64
16
4
1
```

```
a=20; b=12;
while b<>0:
     d=a%b
     a=b
     b=d
```

```
print "celociselny NSD je", a
```

```
celociselny NSD je 4
```

```
def euclid(a,b):
```

```
    while b<>0:
        r=a%b
        a=b
        b=r
    print a
```

```
euclid(20,12)
```
4

```
for i in range(3,100,2):
    if (2^i-1).is_prime():
        print 2^i-1, "je prvocislo"
    else:
        print 2^i-1, "není čprvoíslo"
        break
```
7 je prvocislo
31 je prvocislo
127 je prvocislo
511 není prvočíslo

```
def max3(a,b,c):
    print "Nalezeni maxima z cisel", a,b,c
    if a<b:
        if b<c:
            print(c)
        else:
            print(b)
    elif a<c:
        print(c)
    else:
        print(a)
```

```
max3(3,2,1)
```
Nalezeni maxima z cisel 3 2 1
3

```
def maxN(*args):
    if len(args)>0:
        v=args[0]
        for i in xrange(len(args)):
            if args[i]>v:
                v=args[i]
        print(v)
    else:
        print "Nulovy pocet prvku"
```

```
maxN(9,2,3,4,5.0)
```
9