A Maple list

```
> L := [1,3,5,9,3];
```

$$L := [1, 3, 5, 9, 3]$$

```
> L[2];
```

$$3$$

```
> nops(L);
```

$$5$$

Calculate the polynomial $(x-1)\cdot(x-3)\cdot(x-5)\cdot(x-9)\cdot(x-3)$

```
> x;
```

$$x$$

```
> PROD := proc(L::list,x::name)
  local f,r;
  f := 1;
  for r in L do
      f := f*(x-r);
  od :
  f;
  end;
```

$$PROD := \mathbf{proc}(L::list, x::name)\ \mathbf{local}\ f, r;\ f := 1;\ \mathbf{for}\ r\ \mathbf{in}\ L\ \mathbf{do}\ f := f*(x-r)\ \mathbf{end\ do};\ f\ \mathbf{end\ proc}$$

```
> f := PROD(L,y);
```

$$f := (y-1)\ (y-3)^2\ (y-5)\ (y-9)$$

```
> eval(f,y=2);
```

$$21$$

```
> isprime(13);
```

$$true$$

```
> isprime(14);
```

$$false$$

Find the first prime > n.

```
> NP := proc(nn::integer)
     local n;
     n := nn;
     if n<2 then return 2 fi;
     n:=n+1;
     while not isprime(n) do n := n+1 od;
     n;
  end:
> NP(20);
```

$$23$$

```
> nextprime(20);
```

$$23$$

```
> prevprime(2^62);
```

$$4611686018427387847$$

```
> f := x^3-3*x^2+2*x-5+2*x^6;
```

$$f := 2x^6 + x^3 - 3x^2 + 2x - 5$$

Test if all the coefficients in f are +ve

```
> L := [coeffs(f,x)];
```

$$L := [2, 1, -3, 2, -5]$$

```
> ALLPOS := proc(f::polynom,x::name)
  local S,c;
  S := {coeffs(f,x)};
  for c in S do
     if c<0 then return false; fi;
  od;
  true;
  end :
```

```
> ALLPOS(f,x);
```

$$false$$

```
> g := 2*x+3;
```

$$g := 2\,x + 3$$

```
> ALLPOS(g,x);
```

$$true$$