1 SchØma de Hörner

2 Prog Edit Ajouter | nxt | OK | Save

```
Horn(P,x):={
local k,H;
H:=0;
for(k:=degree(P);k>=0;k:=k-1) {
H:=H*x+coeff(P,x,k);
}
H};;
```

```
// Parsing Horn
// Sucess compiling Horn
```

Done

Menu

3 Horn(3*x^5-2*x^4+7*x^3+2*x^2+5*x-3,x)

$$((((3\cdot x-2)\cdot x+7)\cdot x+2)\cdot x+5)\cdot x-3$$

Menu

4 DØveloppements limitØs

5 Prog Edit Ajouter | nxt | OK | Save

```
dl(f,x,n):={
simplify(convert(taylor(f(x),x=0,n),polynom));
};;
```

```
// Parsing dl
// Success compiling dl
```

Done

Menu

6 dl(tan,x,10)

$$\frac{62\cdot x^9}{2835}+\frac{17\cdot x^7}{315}+\frac{2\cdot x^5}{15}+\frac{x^3}{3}+x$$

Menu

7

8 Prg Edit | Pointeur | Move | / | Save

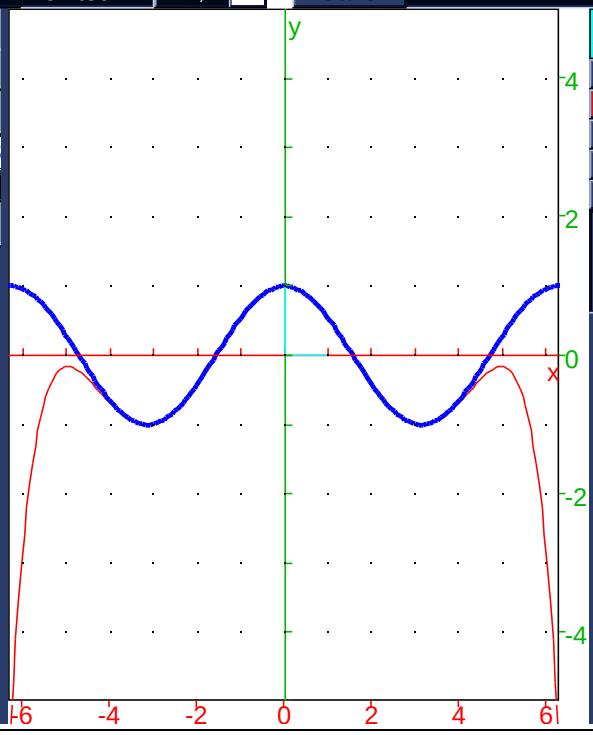
1 n:=element(1 .. 50,10.7

parameter(n,1,50,10.

2 plot([dl(cos,x,floor(n)),

[plotparam(x+(i)*(-1/3

3



x:-1.4386
y:11.674

in | out | cfg | Menu

10.8 n

9 Fig Edit Pointeur Move / Save

1 11.02)

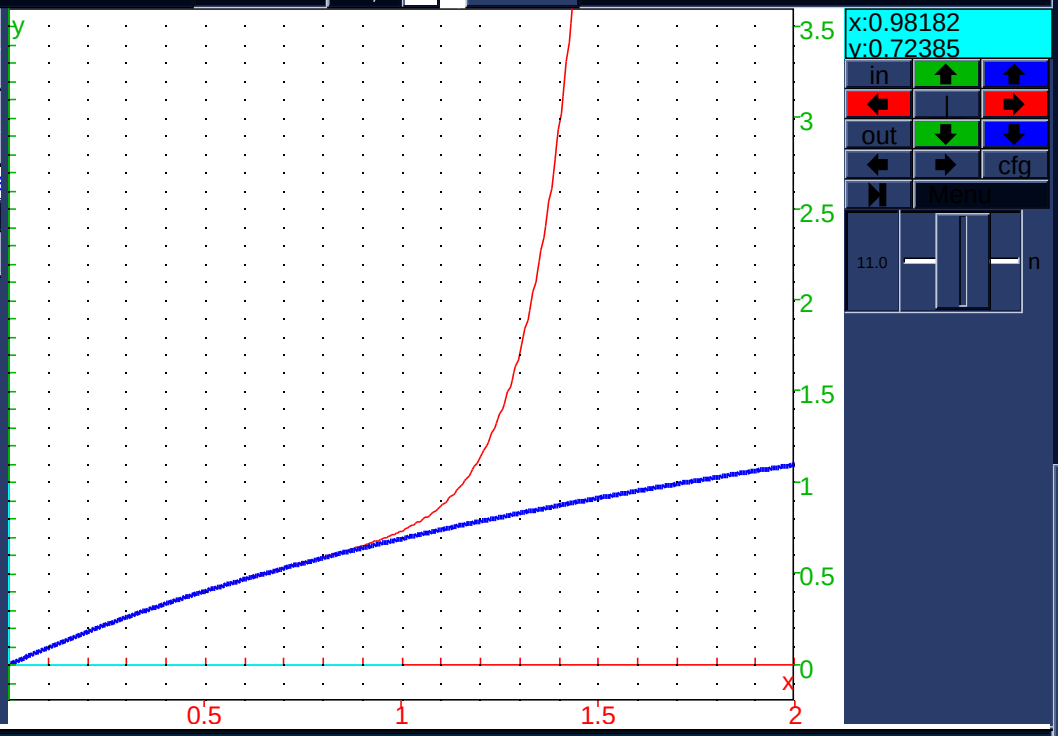
param

2 plot([c

ccess

[plotpa

3



x:0.98182
y:0.72385

in out cfg Menu

11.0 n

10 LAGRANGE

11 Prog Edit Ajouter nxt OK Save

```
Lagrange(X,Y,t):= {
local k,L,P,j;
P:=0;
for(k:=0;k<=size(X)-1;k++) {
L:=simplify(product(t-X[j],j=0..size(X)-1)/(t-X[k]));
L:=L/subs(L,t=X[k]);
P:=P+Y[k]*L;
}
simplify(expand(P));
}:;
```

```
// Parsing Lagrange
// Success compiling Lagrange
```

Done

Menu

12 Lagrange([1,2,3,4,5],[7,-8,9,-10,11],x)

$$6\cdot x^4+\frac{(-214)\cdot x^3}{3}+294\cdot x^2+\frac{(-1463)\cdot x}{3}+266$$

Menu

13

14 Prog Edit Ajouter nxt OK Save

```
LagFonction(f,X,x):= {
Y:=[seq(f(X[k]),k=0..size(X)-1)]:;
return(Lagrange(X,Y,x));
}:;
```

```
// Parsing LagFonction
// Warning: k Y Lagrange  declared as global variable(s) compiling LagFonction
```

Done

Menu

15 LagFonction(t->1/(1+t^2),[1,2,3,4,5],x)

// Sucess

$$\frac{19\cdot x^4}{4420}+\frac{(-147)\cdot x^3}{2210}+\frac{1731\cdot x^2}{4420}+\frac{(-2373)\cdot x}{2210}+\frac{275}{221}$$

16 Prog Edit Ajouter | nxt | OK | Save

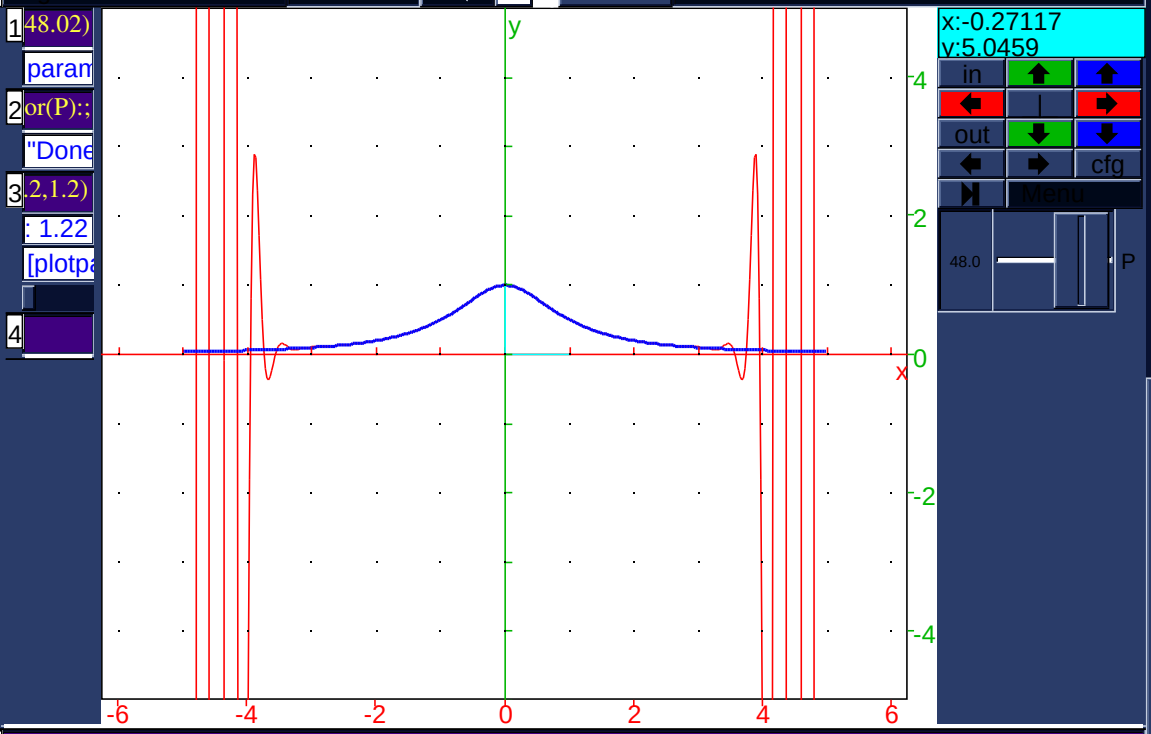
```
LagrangeGraphe(g,a,b,t,xmin,xmax,ymin,ymax):= {
C:=plot(LagFonction(g,[seq(a+(b-a)*j/p,j=0..p)],t),t=xmin..xmax,color=
c:=plot(g(t),t=xmin..xmax,color=blue+line_width_2):;
C,c;
}:;
```

// Parsing LagrangeGraphe
// Warning: LagFonction j p C c declared as global variable(s) compiling LagrangeGraphe

Done

17

18 Fig Edit | Pointeur | Move | Save



19 tchebyshev1(5)

$$16\cdot x^5-20\cdot x^3+5\cdot x$$

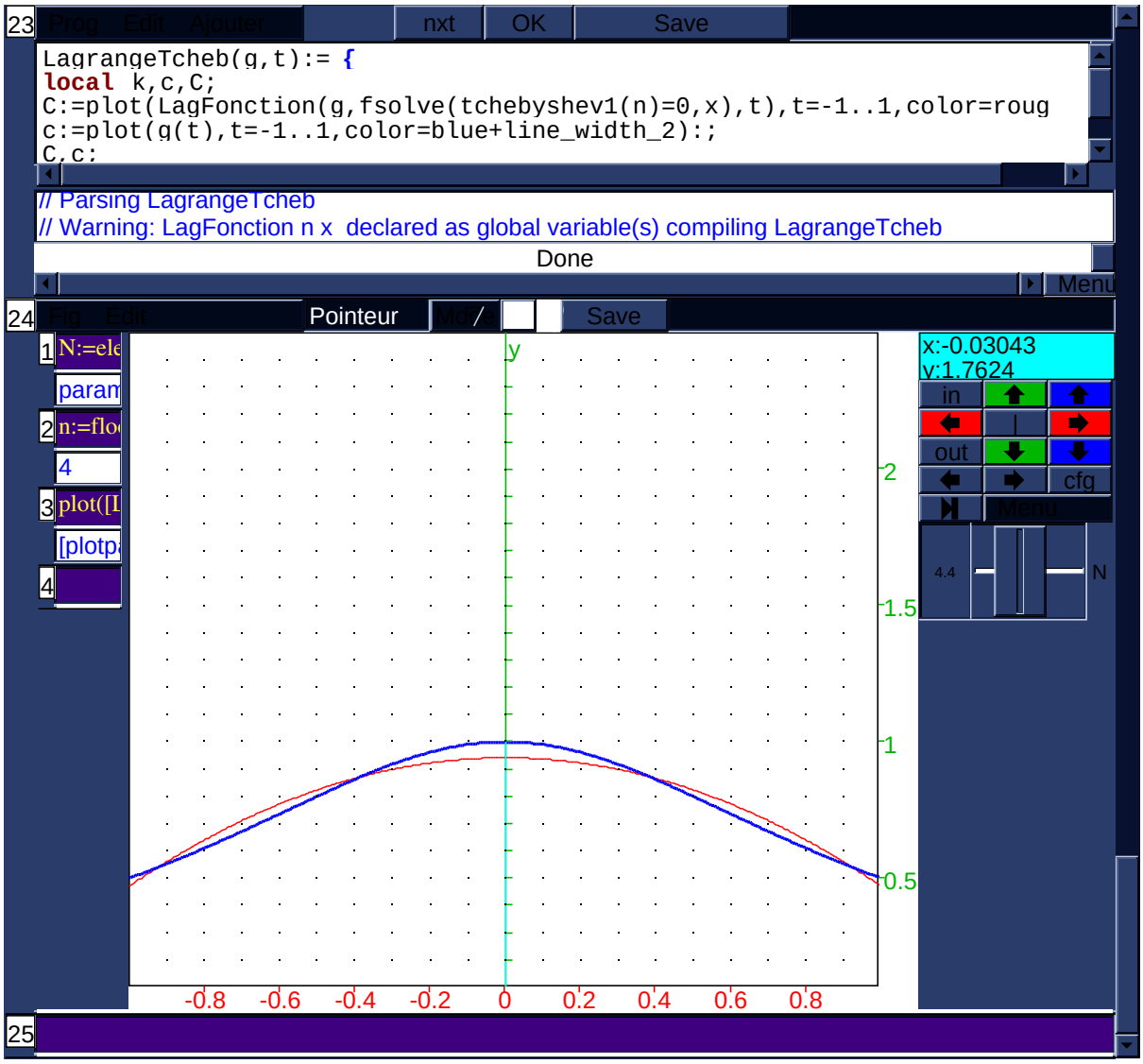
20 solve(tchebyshev1(5)=0,x)

$$\left[\sqrt{\frac{10+2\cdot\sqrt{5}}{16}}\;-\sqrt{\frac{10+2\cdot\sqrt{5}}{16}}\;\;\sqrt{\frac{10-2\cdot\sqrt{5}}{16}}\;-\sqrt{\frac{10-2\cdot\sqrt{5}}{16}}\;\;0\right]$$

21 fsolve(tchebyshev1(5)=0,x)

[0.0 0.587785252292 - 0.587785252292 0.951056516295 - 0.951056516295]

22


23
Prog Edit Ajouter
nxt
OK
Save
LagrangeTcheb(g,t):= {
local k,c,C;
C:=plot(LagFonction(g,fsolve(tchebyshev1(n)=0,x),t),t=-1..1,color=roug
c:=plot(g(t),t=-1..1,color=blue+line_width_2):;
C,c;
// Parsing LagrangeTcheb
// Warning: LagFonction n x declared as global variable(s) compiling LagrangeTcheb
Done
Menu
24
Fig Edit
Pointeur
Move
/
Save
1 N:=ele
param
2 n:=flo
4
3 plot([I
[plotp
4
y
x:-0.03043
y:1.7624
in
out
cfg
Menu
4.4
N
2
1.5
1
0.5
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
25