POLYINTERP EXAMPLE

> read polyinterp:

> seq(i,i=0..6);

$$0, 1, 2, 3, 4, 5, 6$$

> seq(.2*i*Pi,i=0..6);

$$0, .2\,\pi, .4\,\pi, .6\,\pi, .8\,\pi, 1.0\,\pi, 1.2\,\pi$$

> ["];

$$[\,0, .2\,\pi, .4\,\pi, .6\,\pi, .8\,\pi, 1.0\,\pi, 1.2\,\pi\,]$$

> map(x -> [x,sin(x)],");

$$[\,[\,0, 0\,], [\,.2\,\pi, \sin(.2\,\pi)\,], [\,.4\,\pi, \sin(.4\,\pi)\,], [\,.6\,\pi, \sin(.6\,\pi)\,],$$
$$[\,.8\,\pi, \sin(.8\,\pi)\,], [\,1.0\,\pi, \sin(1.0\,\pi)\,], [\,1.2\,\pi, \sin(1.2\,\pi)\,]\,]$$

> sin_list := evalf(");

$$sin\_list := [\,[\,0, 0\,], [\,.6283185308, .5877852524\,],$$
$$[\,1.256637062, .9510565165\,],$$

$$[\,1.884955592, .9510565163\,],$$

$$[\,2.513274123, .5877852522\,],$$

$$[\,3.141592654, -.4102067615 \ 10^{-9}\,],$$

$$[\,3.769911185, -.5877852529\,]\,]$$

> p := polyinterp(sin_list,'x');

$$p := .99938790 \ x - .1663084838 \ x^3 + .00139080 \ x^2$$
$$- .00305064 \ x^4 + .011275605 \ x^5 - .0011963788 \ x^6$$

> plot({p,sin(x)},x=0..2*Pi,style=point);