```
directorio = Directory[]
             ⌊directorio

ftest[z_] =                         1
            ─────────────────────────────────────────────────
            (z - 1.2) (1 / z - 1.2) (z - 1.2 I) (1 / z - 1.2 / I)
ftest[z_] = Exp[z] + Exp[1 / z]
            ⌊exponencial ⌊exponencial

Attributes[ftest] = {Listable}
⌊atributos           ⌊listable

(* kepler.wls obtains the system of arcs related with
 the satellite position and write it as arcosalpha *)

n = 40; T = 2 * Pi;
                ⌊número pi

Get["Dropbox/articulo2023/kepler.wls"]
⌊recibe

(* arcos.wls obtains all the system of
 arcs related with arcosalpha in the sense of
 the paper and the related nodal systems *)
Get["Dropbox/atypeofinterpolation2023/arcos.wls"]
⌊recibe

(* derivadas.wls obtains the derivatives
 used in the paper for a nodal system in T *)
listaalpha = alphaW2n;
listaarcosalpha = arcosalphaW2n;
Get["Dropbox/atypeofinterpolation2023/derivadas.wls"];
⌊recibe
derivadasalphaW2n = derivadas;
derivadassegundasalphaW2n =
  derivadas * factoresderivadassegundas;

(* same comment as before *)
listaalpha = alphaYn;
listaarcosalpha = arcosalphaYn;
Get["Dropbox/atypeofinterpolation2023/derivadas.wls"];
⌊recibe
```

```
recibe
derivadasalphaYn = derivadas;
derivadassegundasalphaYn =
  derivadas * factoresderivadassegundas;


(* same comment as before *)
listaalpha = alphaZn;
listaarcosalpha = arcosalphaZn;
Get["Dropbox/atypeofinterpolation2023/derivadas.wls"];
recibe
derivadasalphaZn = derivadas;
derivadassegundasalphaZn =
  derivadas * factoresderivadassegundas;

(* u and v in the sense of the paper *)
u = N[ftest[alphaW2n], 50];
    valor numérico
v = N[ftest'[alphaW2n], 50];
    valor numérico

(* semi Hermite and semi Hermite-
 Fejer interpolants using the barycentric formulae *)
```

SHerm[z_] =

$$\left(\sum_{k=1}^{n}\left(\frac{\text{alphapwp}[\![2\,k]\!]\times\text{derivadasalphaZn}[\![k]\!]\times u[\![2\,k]\!]}{(z-\text{alphaW2n}[\![2\,k]\!])\ (\text{derivadasalphaW2n}[\![2\,k]\!])\,\hat{}\,2}+\right.\right.$$

$$(\text{alphapwp}[\![2\,k-1]\!]\ /\ ((z-\text{alphaW2n}[\![2\,k-1]\!])\ \text{derivadasalphaW2n}[\![2\,k-1]\!]\times\text{derivadasalphaYn}[\![k]\!]))\left(\frac{1}{(z-\text{alphaW2n}[\![2\,k-1]\!])}-\frac{\text{derivadassegundasalphaW2n}[\![2\,k-1]\!]}{2\ \text{derivadasalphaW2n}[\![2\,k-1]\!]}-\frac{\text{derivadassegundasalphaYn}[\![k]\!]}{2\,\text{derivadasalphaYn}[\![k]\!]}+\frac{3\,n}{2}\right)u[\![2\,k-1]\!]\Bigg)+$$

$$\sum_{k=1}^{n}((\text{alphapwp}[\![2\,k-1]\!]\ /\ ((z-\text{alphaW2n}[\![2\,k-1]\!])\ \text{derivadasalphaW2n}[\![2\,k-1]\!]\times$$

```
        derivadasalphaYn[[k]])) v[[2 k - 1]])) /
  (Sum[(alphapwp[[2 k]] × derivadasalphaZn[[k]] / ((z - alphaW2n[[2 k]]) (derivadasalphaW2n[[2 k]])^2) +
     (alphapwp[[2 k - 1]] /
       ((z - alphaW2n[[2 k - 1]]) derivadasalphaW2n[[2 k - 1]] ×
        derivadasalphaYn[[k]])) (1 / (z - alphaW2n[[2 k - 1]]) -
       derivadassegundasalphaW2n[[2 k - 1]] / (2 derivadasalphaW2n[[2 k - 1]]) -
       derivadassegundasalphaYn[[k]] / (2 derivadasalphaYn[[k]]) + 3 n / 2))), {k, 1, n}]);
```

```
BB = Plot[{Re[SHerm[E^(I x)]], Re[ftest[E^(I x)]]},
   {x, 0, 2 Pi}, PlotRange → Full, PlotPoints → 600,
   PlotStyle → {{Red, Thickness[.001]},
     {Black, Thickness[.001]}}, AspectRatio → 5 / 7];
BB1 = Plot[{Re[SHerm[E^(I x)]] - Re[ftest[E^(I x)]]},
   {x, 0, 2 Pi}, PlotRange → Full, PlotPoints → 200,
   PlotStyle → {{Black, Thickness[.001]},
     {Black, Thickness[.001]}}, AspectRatio → 5 / 7];
```

```
(*AA=Table[{Re[Log[alphaW2n[[k]]]/I],
   Re[ftest[alphaW2n[[k]]]]},{k,1,3n/4}];
AA=ListPlot[AA,PlotStyle→PointSize[.005]];*)
Show[BB]
```

muestra

Show[BB1]

muestra

Out[ ]=

/Users/macmjrt

Out[ ]=

$$\frac{1}{\left(-1.2+\frac{1}{z}\right)\left((0.+1.2\,i)+\frac{1}{z}\right)(-1.2+z)((0.-1.2\,i)+z)}$$

Out[ ]=

$$e^{\frac{1}{z}}+e^{z}$$

Out[ ]=

{Listable}

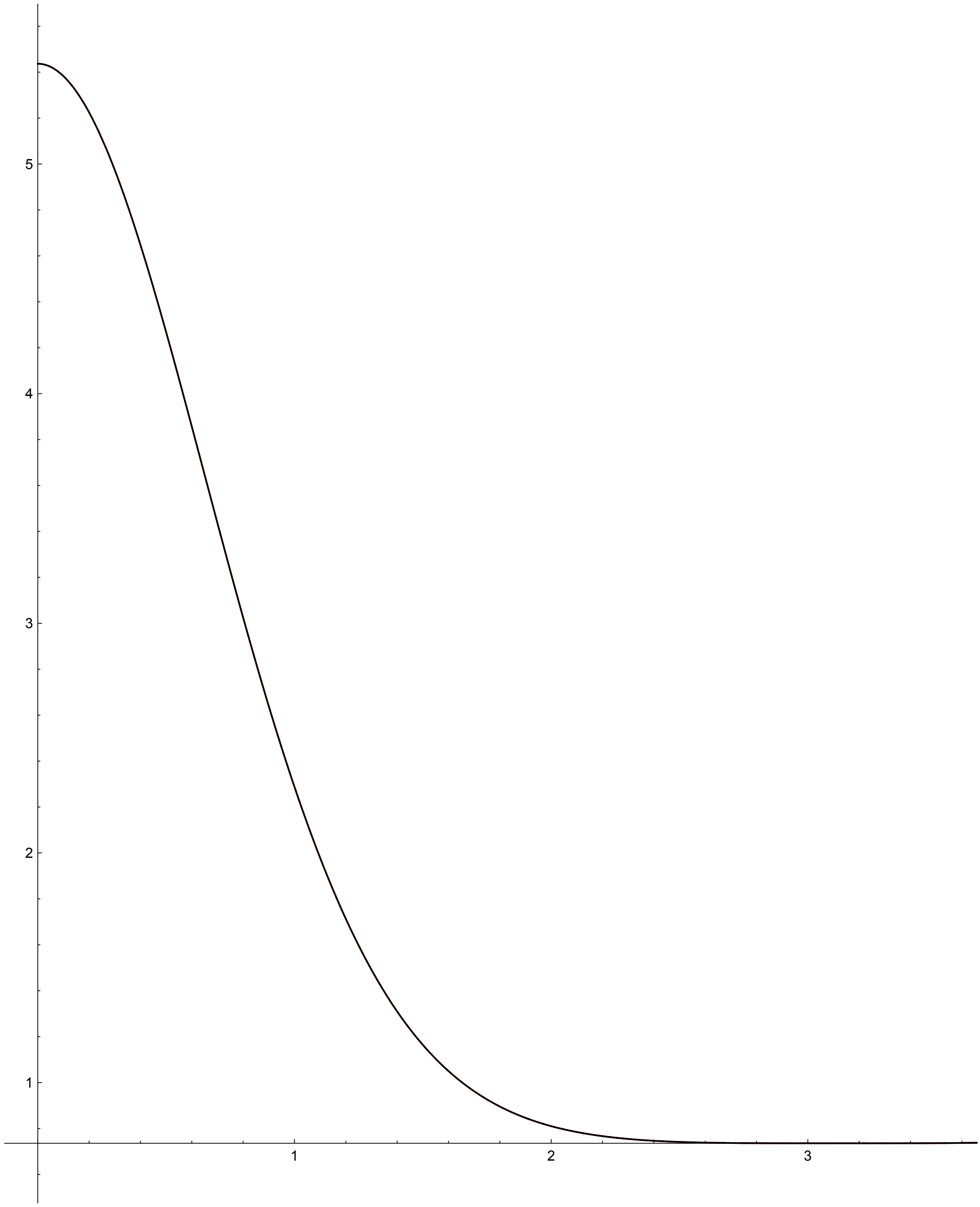
Power : Infinite expression $\frac{1}{0.+0.\,i}$ encountered.

Power : Infinite expression $\frac{1}{0.+0.\,i}$ encountered.

Power : Infinite expression $\frac{1}{0.+0.\,i}$ encountered.

General : Further output of Power::infy will be suppressed during this calculation.

Out[ ]=



Out[ ]=