

```
directorio = Directory[]  
└──directorio
```

$$f_{test}[z_-] = \frac{z + \frac{1}{z}}{2} \sin\left[1 \Big/ \left(\frac{z + \frac{1}{z}}{2}\right)\right]$$

└──seno

```
Attributes[f_{test}] = {Listable}  
└──atributos └──listable
```

```
(* random.wls obtains the system of arcs related with  
the random device and write it as arcosalpha *)
```

```
n = 100; T = 2 * Pi;  
└──número pi
```

```
Get["Dropbox/articulo2023/random.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;  
listaaarcosalpha = arcosalphaW2n;  
Get["Dropbox/atypeofinterpolation2023/derivadas.wls"];  
└──recibe  
derivadasalphaW2n = derivadas;  
derivadassegundasalphaW2n =  
derivadas * factoresderivadassegundas;
```

```
(* same comment as before *)
```

```
listaalpha = alphaYn;  
listaaarcosalpha = arcosalphaYn;  
Get["Dropbox/atypeofinterpolation2023/derivadas.wls"];  
└──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 = ftest[alphaW2n]; v = ftest'[alphaW2n];
```

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

```
SHFejer[z_] =
```

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

$$\frac{\text{derivadassegundas}\alpha Y_n[k]}{2 \text{ derivadas}\alpha Y_n[k]} + \frac{3n}{2} \Bigg) \Bigg);$$

$$\text{SHerm}[z_] =$$

$$\begin{aligned} & \left(\sum_{k=1}^n \left(\frac{\alpha p_{wp}[2k] \times \text{derivadas}\alpha Z_n[k] \times u[2k]}{(z - \alpha w_{2n}[2k]) (\text{derivadas}\alpha w_{2n}[2k])^2} + \right. \right. \\ & \quad \left(\alpha p_{wp}[2k-1] / \right. \\ & \quad \left. \left. ((z - \alpha w_{2n}[2k-1]) \text{derivadas}\alpha w_{2n}[2k-1] \times \right. \right. \\ & \quad \left. \left. \text{derivadas}\alpha Y_n[k]) \right) \left(\frac{1}{(z - \alpha w_{2n}[2k-1])} - \right. \right. \\ & \quad \left. \left. \frac{\text{derivadassegundas}\alpha w_{2n}[2k-1]}{2 \text{ derivadas}\alpha w_{2n}[2k-1]} - \right. \right. \\ & \quad \left. \left. \frac{\text{derivadassegundas}\alpha Y_n[k]}{2 \text{ derivadas}\alpha Y_n[k]} + \frac{3n}{2} \right) u[2k-1] \right) + \\ & \quad \sum_{k=1}^{n/5} \left((\alpha p_{wp}[2k-1] / ((z - \alpha w_{2n}[2k-1]) \right. \\ & \quad \left. \text{derivadas}\alpha w_{2n}[2k-1] \times \text{derivadas}\alpha Y_n[k]) \right) \\ & \quad v[2k-1]) + \sum_{k=4n/5}^n \left((\alpha p_{wp}[2k-1] / \right. \\ & \quad \left. ((z - \alpha w_{2n}[2k-1]) \text{derivadas}\alpha w_{2n}[2k-1] \times \right. \\ & \quad \left. \text{derivadas}\alpha Y_n[k]) \right) v[2k-1] \Bigg) / \\ & \left(\sum_{k=1}^n \left(\frac{\alpha p_{wp}[2k] \times \text{derivadas}\alpha Z_n[k]}{(z - \alpha w_{2n}[2k]) (\text{derivadas}\alpha w_{2n}[2k])^2} + \right. \right. \\ & \quad \left(\alpha p_{wp}[2k-1] / \right. \\ & \quad \left. \left. ((z - \alpha w_{2n}[2k-1]) \text{derivadas}\alpha w_{2n}[2k-1] \times \right. \right. \\ & \quad \left. \left. \text{derivadas}\alpha Y_n[k]) \right) \left(\frac{1}{(z - \alpha w_{2n}[2k-1])} - \right. \right. \\ & \quad \left. \left. \frac{\text{derivadassegundas}\alpha w_{2n}[2k-1]}{2 \text{ derivadas}\alpha w_{2n}[2k-1]} - \right. \right. \\ & \quad \left. \left. \frac{\text{derivadassegundas}\alpha Y_n[k]}{2 \text{ derivadas}\alpha Y_n[k]} + \frac{3n}{2} \right) \right) \Bigg); \end{aligned}$$

```

BB = Plot[ {Re[SHerm[E ^ (I x) ]], Re[ftest[E ^ (I x) ] ]},
  representación parte real número número i parte real número número i
  {x, 0, Pi / 2 + .3}, PlotRange → Full, PlotPoints → 100,
  número pi rango de representación completo número de puntos en la representación
  PlotStyle → { {Red, Thickness[.001]},
  estilo de representación rojo grosor
  {Black, Thickness[.001]}}, AspectRatio → 5 / 7];
  negro grosor cociente de aspecto
BB1 = Plot[ {Re[SHFejer[E ^ (I x) ]], Re[ftest[E ^ (I x) ] ]},
  representación parte real número número i parte real número número i
  {x, Pi / 2 - 0.3, Pi / 2 + .3}, PlotRange → Full,
  número pi número pi rango de representación completo
  PlotPoints → 200, PlotStyle → { {Red, Thickness[.001]},
  número de puntos en la representación estilo de representación rojo grosor
  {Black, Thickness[.001]}}, AspectRatio → 5 / 7];
  negro grosor cociente de aspecto

```

```

AA = Table[ {Re[Log[alphaW2n[k]] / I],
  tabla par logaritmo número i
  Re[ftest[alphaW2n[k]] ]}, {k, 1, 2 n}];
  parte real
AA = ListPlot[AA, PlotStyle → PointSize[.005]];
  representación de lista estilo de representación tamaño de punto
Show[BB, AA]
muestra
Show[BB1, AA]
muestra

```

```

Out[*]=
/Users/eliasberriochoaesnaola

```

```

Out[*]=

$$\frac{1}{2} \left( \frac{1}{z} + z \right) \sin \left[ \frac{2}{\frac{1}{z} + z} \right]$$


```

```

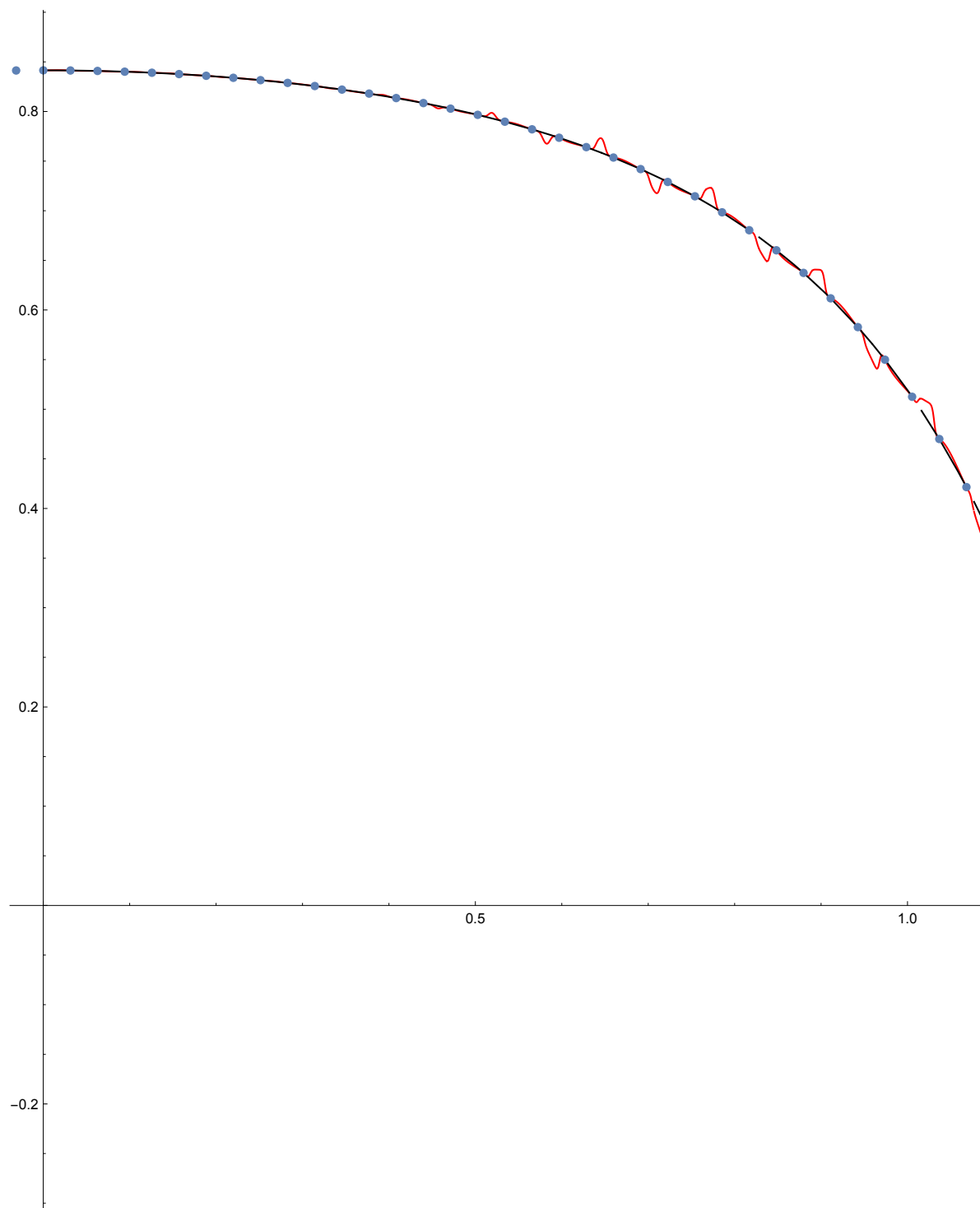
Out[*]=
Interval[{-∞, ∞}]

```

```

Out[*]=
{Listable}

```

Out[*n*]=

Out[8]=

