

```
(** DIFFERENZE DIVISE **)
```

```
Clear[f]
n = 4;
x[0] = 0; f[0] = -1.0;
x[1] = 0.25; f[1] = 0.5;
x[2] = 0.5; f[2] = 2.0;
x[3] = 0.75; f[3] = 3.0;
x[4] = 1.0; f[4] = 2.5;
(**x[0]=1.;f[0]=0.7651977;
x[1]=1.3;f[1]=0.6200860;
x[2]=1.6;f[2]=0.4554022;
x[3]=1.9;f[3]=0.2818186;
x[4]=2.2;f[4]=0.1103623;**)
```

```
ff = Table[{x[k], f[k]}, {k, 0, n}]
```

```
{ {0, -1.}, {0.25, 0.5}, {0.5, 2.}, {0.75, 3.}, {1., 2.5} }
```

```
ticks1 = {{0, 0.2, 0.4, 0.6, 0.8, 1}, {-1, 0, 1.2, 3}};
```

```
p11 = ListPlot[ff, PlotStyle -> PointSize[0.02], Ticks -> ticks1];
```

```
(* ALGORITMO 3.2 del Faires Burden *)
```

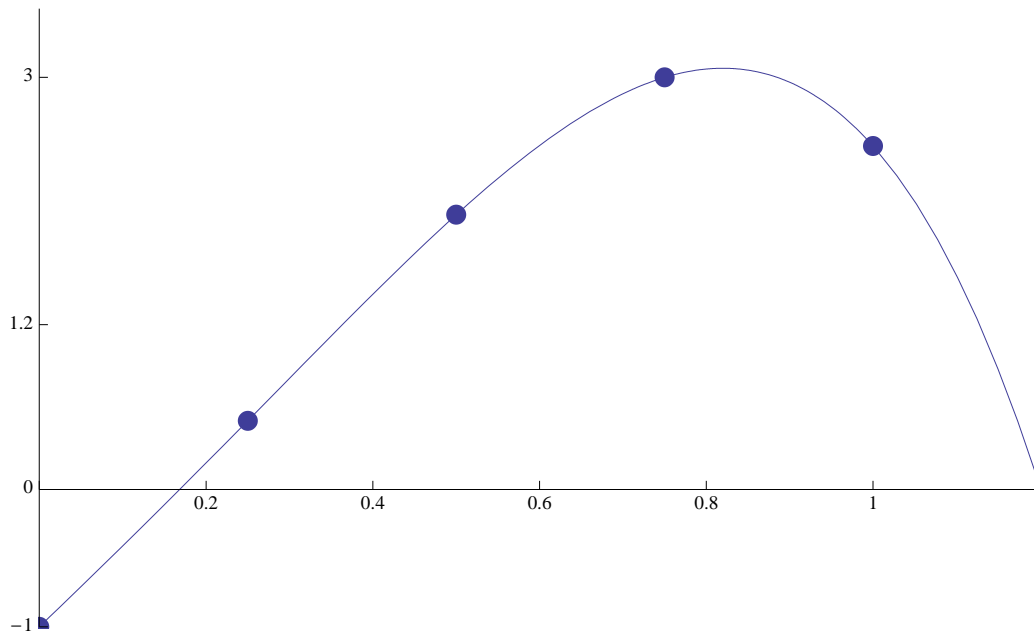
```
Do[d[k][0] = f[k], {k, 0, n}]
```

```
Do[d[k][j] = (d[k][j-1] - d[k-1][j-1]) / (x[k] - x[k-j]), {k, 1, n}, {j, 1, k}]
```

```
pn[x_] = Sum[d[k][k] * Product[(x - x[j]), {j, 0, k-1}], {k, 0, n}];
```

```
p12 = Plot[pn[x], {x, 0, 1.2}];
```

```
Show[p11, p12, PlotRange -> {{0, 1.2}, {-1, 3.5}}]
```



```
Do[Print["k = ", k, " x = ", x[k], " f = ", f[k]], {k, 0, n}]
```

```
k = 0 x = 0 f = -1.
```

```
k = 1 x = 0.25 f = 0.5
```

```
k = 2 x = 0.5 f = 2.
```

```
k = 3 x = 0.75 f = 3.
```

```
k = 4 x = 1. f = 2.5
```

```
Do[Print["k = ", k, " j = ", j, " d = ", d[k][j]], {k, 0, n}, {j, 0, k}]
```

k = 0 j = 0 d = -1.
k = 1 j = 0 d = 0.5
k = 1 j = 1 d = 6.
k = 2 j = 0 d = 2.
k = 2 j = 1 d = 6.
k = 2 j = 2 d = 0.
k = 3 j = 0 d = 3.
k = 3 j = 1 d = 4.
k = 3 j = 2 d = -4.
k = 3 j = 3 d = -5.33333
k = 4 j = 0 d = 2.5
k = 4 j = 1 d = -2.
k = 4 j = 2 d = -12.
k = 4 j = 3 d = -10.6667
k = 4 j = 4 d = -5.33333