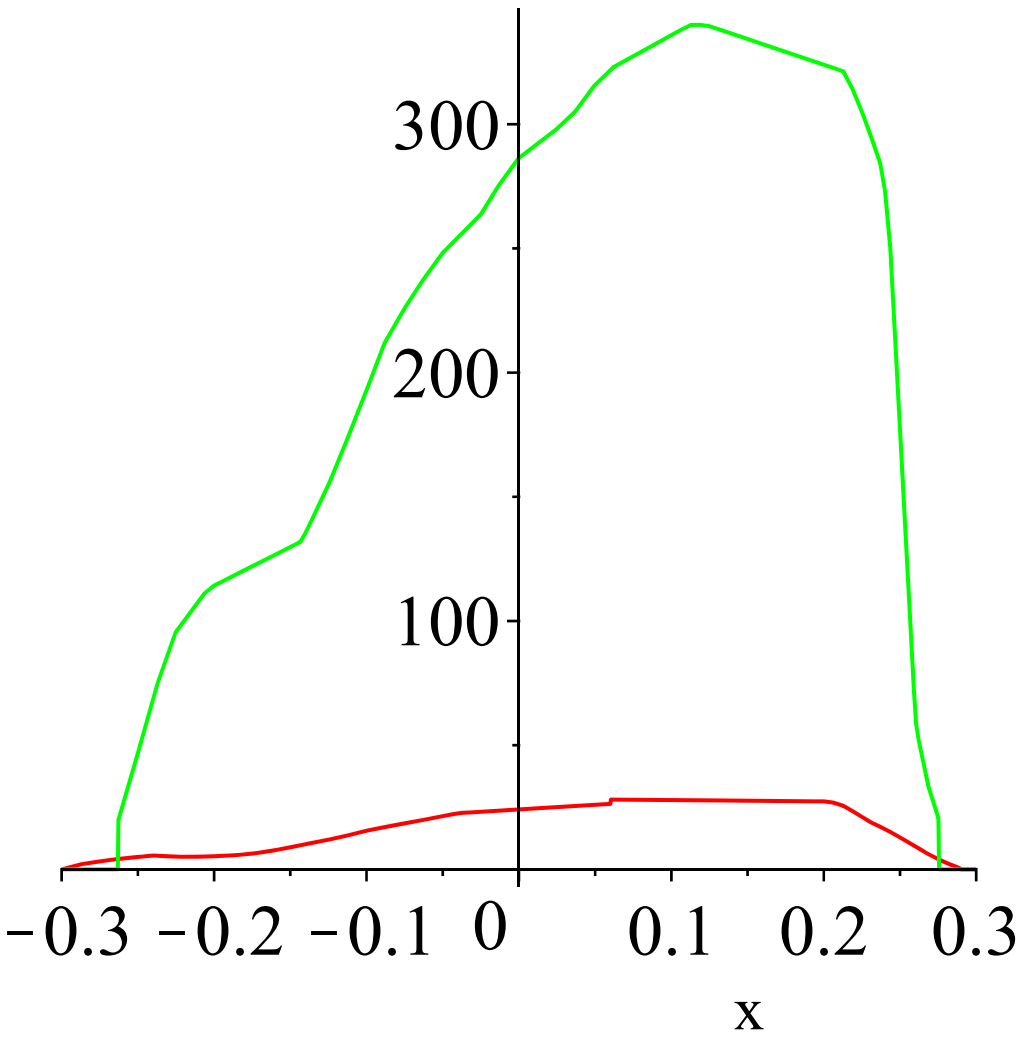
```
> restart:
> X_SPIFI:=[0.29,0.28,0.27,0.26,0.25,0.24,0.23,0.22,0.21,0.2,0.06,
  0.06,-0.04,-0.06,-0.08,-0.1,-0.12,-0.14,-0.16,-0.18,-0.2,-0.22,
  -0.24,-0.26,-0.28,-0.29,-0.3]:
> Y_SPIFI:=[0.3214,2.7381,5.5926,9.2886,12.8748,16.2581,19.2095,
  23.0821,26.5769,27.3676,28.0875,26.3901,22.6486,20.2153,17.9829,
  15.5548,12.5495,10.1389,7.6718,5.9165,5.2746,5.0291,5.5631,
  4.4516,2.7942,1.8130,0.0280]:
> X_Eve:=[0.275510204,0.265306122,0.260204082,0.242346939,
  0.237244898,0.227040816,0.214285714,0.12244898,0.112244898,
  0.0561224,0.033163265,-0.005102041,-0.022959184,-0.053571429,
  -0.073979592,-0.091836735,-0.102040816,-0.114795918,-0.12755102,
  -0.14285714,-0.204081633,-0.227040816,-0.244897959,-0.25255102,
  -0.262755102]:
> Y_Eve:=[20,40,60,265,284,302,321,340,340,321,302,284,265,246,227,
  208,189,170,151,132,113,94,60,40,20]:
> for i from 1 to nops(X_SPIFI)-1 do
> m_SPIFI[i]:=(Y_SPIFI[i+1]-Y_SPIFI[i])/(X_SPIFI[i+1]-X_SPIFI[i]);
> b_SPIFI[i]:=Y_SPIFI[i]-m_SPIFI[i]*X_SPIFI[i];
> line_SPIFI[i]:=unapply(m_SPIFI[i]*x + b_SPIFI[i], x);
> condition_SPIFI[i]:=X_SPIFI[i] >= x and x > X_SPIFI[i+1];
> arg_SPIFI[2*i-1]:=condition_SPIFI[i];
> arg_SPIFI[2*i]:=line_SPIFI[i](x); od:
> for i from 1 to nops(X_Eve)-1 do
> m_Eve[i]:=(Y_Eve[i+1]-Y_Eve[i])/(X_Eve[i+1]-X_Eve[i]);
> b_Eve[i]:=Y_Eve[i]-m_Eve[i]*X_Eve[i];
> line_Eve[i]:=unapply(m_Eve[i]*x + b_Eve[i], x);
> condition_Eve[i]:=X_Eve[i] >= x and x > X_Eve[i+1];
> arg_Eve[2*i-1]:=condition_Eve[i];
> arg_Eve[2*i]:=line_Eve[i](x); od:
> SPIFI:=unapply(piecewise(op(convert(arg_SPIFI,list))),x): Eve:=
  unapply(piecewise(op(convert(arg_Eve,list))),x):
> plot({SPIFI(x), Eve(x)}, x=-0.3..0.3);
```

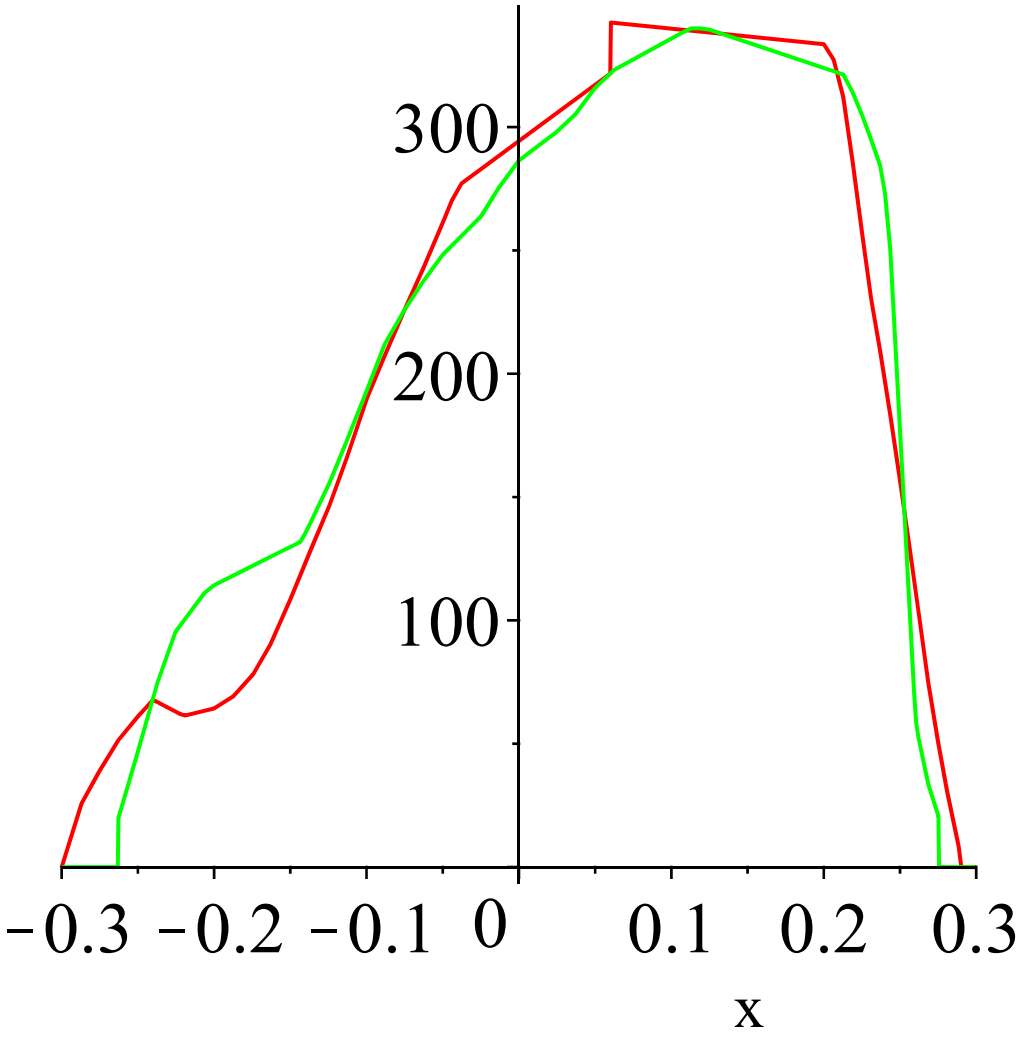



```
> for i from 1 to 200 do
> Y_SPIFI_scaled[i]:=(11+i*(0.01))*Y_SPIFI;
> for j from 1 to nops(X_SPIFI)-1 do
> m_SPIFI[j]:=(Y_SPIFI_scaled[i][j+1]-Y_SPIFI_scaled[i][j])/
  (X_SPIFI[j+1]-X_SPIFI[j]);
> b_SPIFI[j]:=Y_SPIFI_scaled[i][j]-m_SPIFI[j]*X_SPIFI[j];
> line_SPIFI[j]:=unapply(m_SPIFI[j]*x + b_SPIFI[j], x);
> condition_SPIFI[j]:=X_SPIFI[j] >= x and x > X_SPIFI[j+1];
> arg_SPIFI[2*j-1]:=condition_SPIFI[j];
> arg_SPIFI[2*j]:=line_SPIFI[j](x); od:
> SPIFI:=unapply(piecewise(op(convert(arg_SPIFI,list))),x):
> for k from 1 to 53 do
> a:=(-0.26+k*0.01);
> chi2[k]:=(SPIFI(a)-Eve(a))^2; od:
> sum_chi2[i]:=sum(chi2[l], l=1..53);
> od:
> sum_chi2_list:=convert(sum_chi2, list):
```

```
> for m from 1 to nops(sum_chi2_list) do
  b:=verify(sum_chi2_list[m], min(op(sum_chi2_list))):
  if b=true then minimum:=m-1: end if: od:
> scaling_factor:=11+minimum*0.01;
```

$$scaling\_factor := 12.19$$

```
> for j from 1 to nops(X_SPIFI)-1 do
> m_SPIFI[j]:=(Y_SPIFI_scaled[minimum][j+1]-Y_SPIFI_scaled[minimum]
  [j])/(X_SPIFI[j+1]-X_SPIFI[j]);
> b_SPIFI[j]:=Y_SPIFI_scaled[minimum][j]-m_SPIFI[j]*X_SPIFI[j];
> line_SPIFI[j]:=unapply(m_SPIFI[j]*x + b_SPIFI[j], x);
> condition_SPIFI[j]:=X_SPIFI[j] >= x and x > X_SPIFI[j+1];
> arg_SPIFI[2*j-1]:=condition_SPIFI[j];
> arg_SPIFI[2*j]:=line_SPIFI[j](x); od:
> SPIFI:=unapply(piecewise(op(convert(arg_SPIFI,list))),x):
> plot({SPIFI(x), Eve(x)}, x=-0.3..0.3);
```




```
> final_chi:=evalf((sum_chi2_list[minimum]/6^2)/(53));
  prob:=1-stats[statevalf,cdf,chisquare[53]](final_chi*(53));
```

$$final\_chi := 17.12484495$$

$$prob := 0.$$

```
> minimum;
```

$$119$$

```
> CenterTempSPIFI:=SPIFI(0);
```

$$CenterTempSPIFI := 24.14520000$$

```
> CenterTempEve:=Eve(0);
```

$$CenterTempEve := 286.4000001$$