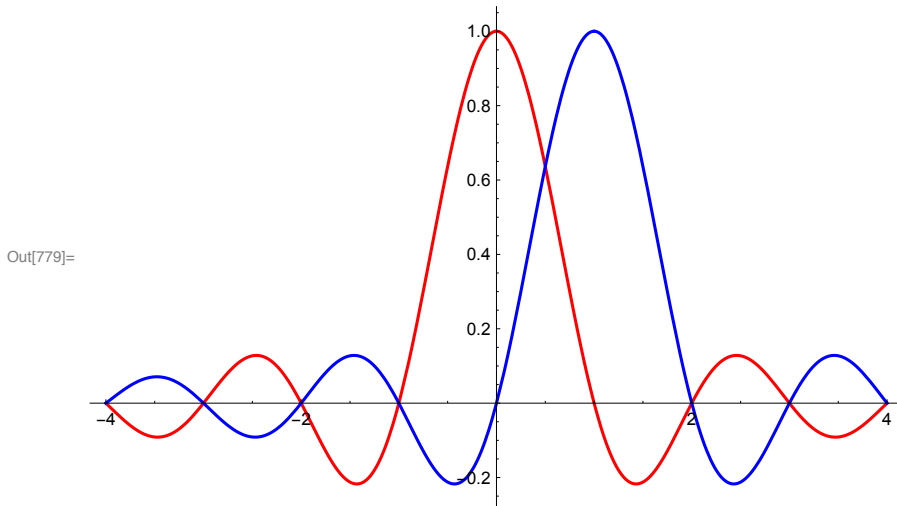
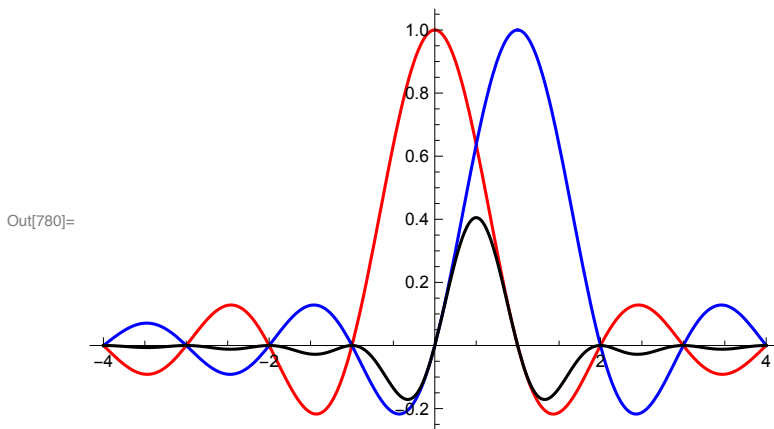


Orthogonality property of the Sinc-function

```
In[779]:= Plot[{  
  Sin[Pi x] / (Pi x),  
  Sin[Pi (x - 1)] / (Pi (x - 1)) },  
  {x, -4, 4},  
  PlotRange -> All,  
  PlotStyle -> {Red, Blue}]
```



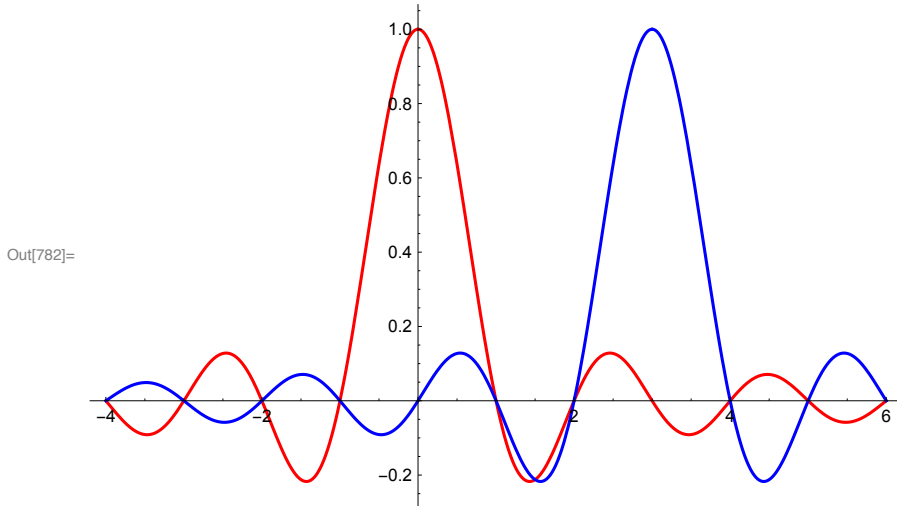
```
In[780]:= Plot[{  
  Sin[Pi x] / (Pi x),  
  Sin[Pi (x - 1)] / (Pi (x - 1)),  
  Sin[Pi x] / (Pi x) * Sin[Pi (x - 1)] / (Pi (x - 1)) },  
  {x, -4, 4},  
  PlotRange -> All,  
  PlotStyle -> {Red, Blue, Black}]
```



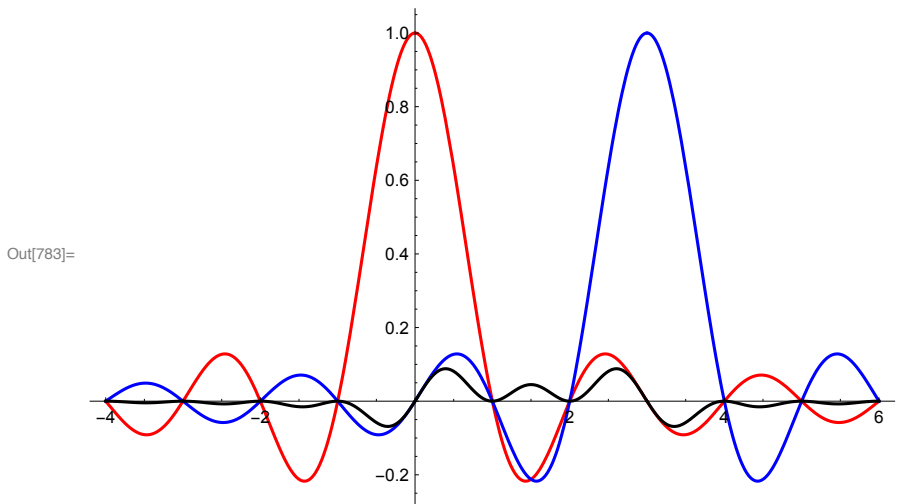
```
In[781]:= Integrate[  
  Sin[Pi x] / (Pi x)  
  * Sin[Pi (x - 1)] / (Pi (x - 1)), {x, -∞, ∞}]
```

Out[781]= 0

```
In[782]:= Plot[{
  Sin[Pi x] / (Pi x),
  Sin[Pi (x - 3)] / (Pi (x - 3)) },
{x, -4, 6},
PlotRange -> All,
PlotStyle -> {Red, Blue}]
```



```
In[783]:= Plot[{
  Sin[Pi x] / (Pi x),
  Sin[Pi (x - 3)] / (Pi (x - 3)),
  Sin[Pi x] / (Pi x) * Sin[Pi (x - 3)] / (Pi (x - 3))},
{x, -4, 6},
PlotRange -> All,
PlotStyle -> {Red, Blue, Black}]
```



```
In[784]:= Integrate[
  Sin[Pi x] / (Pi x)
  * Sin[Pi (x - 3)] / (Pi (x - 3)), {x, -∞, ∞}]
```

Out[784]= 0