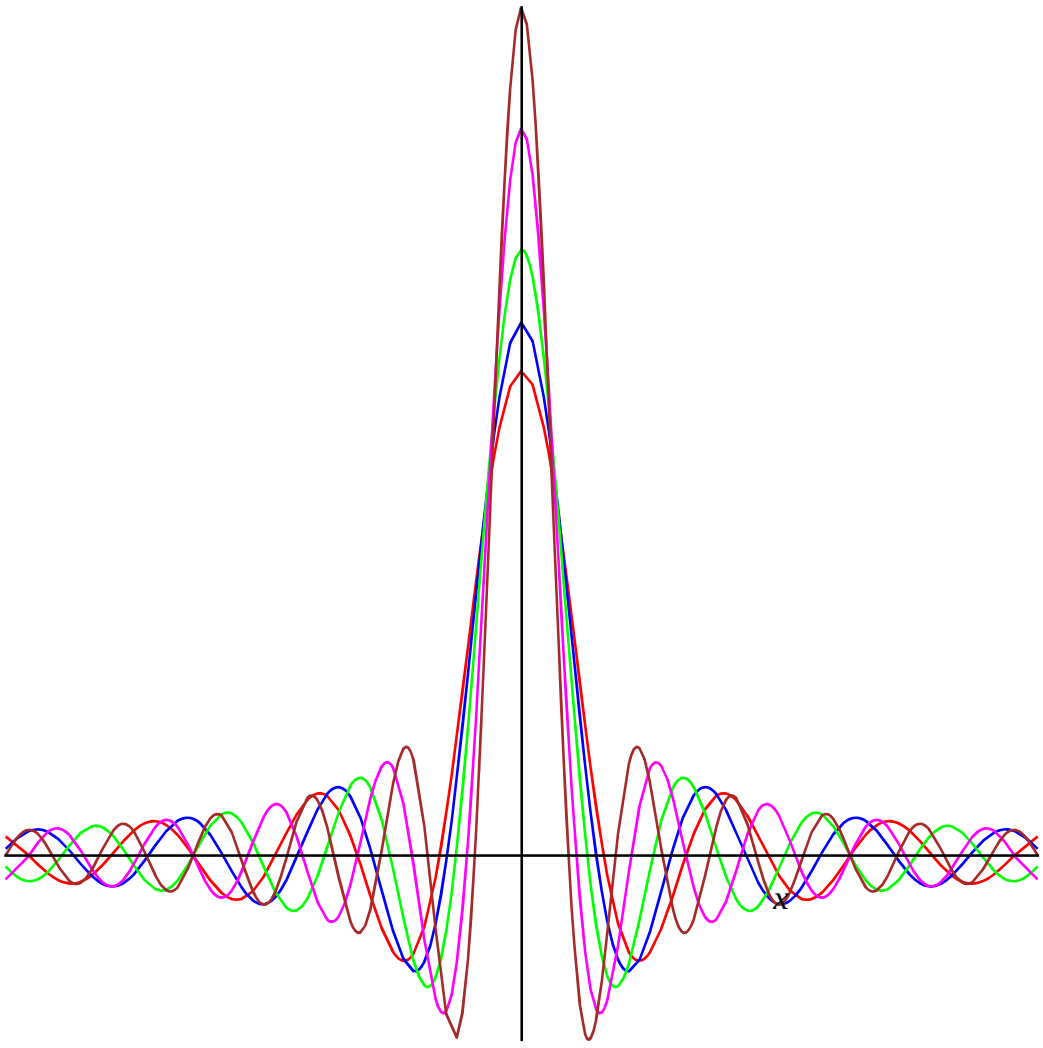
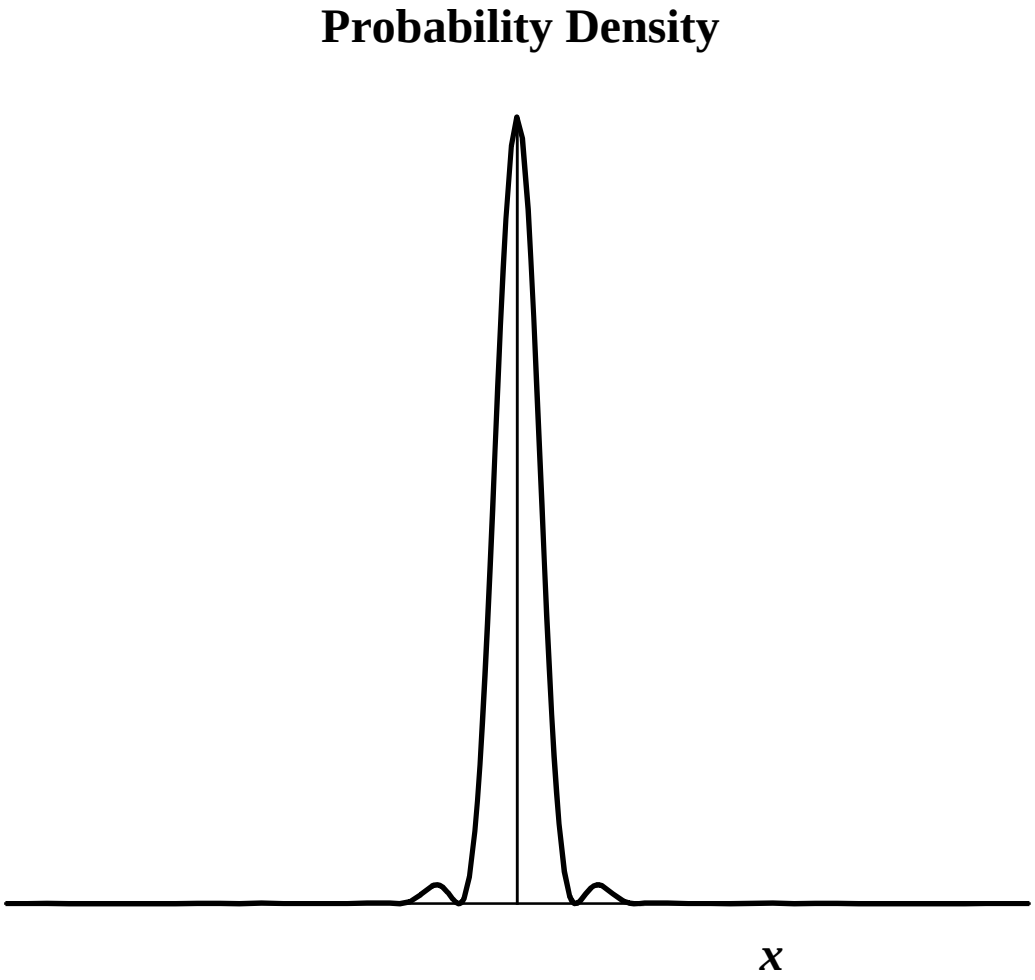
```
> restart :
> with( plots ) :
```

A wavepacket

```
> δ := 1 : A := 1 : ϵ := 1 :
  f1 := A· (sin(π·x)) / (π·x) : f2 := A·ϵ· (sin(π·1.10 δ·x)) / (π·x) : f3 := A·ϵ· (sin(π·1.25· δ·x)) / (π·x) :
  f4 := A·ϵ· (sin(π·1.50· δ·x)) / (π·x) : f5 := A·ϵ· (sin(π·1.75· δ·x)) / (π·δ·x) :
  f6 := f2 + f3 + f4 + f5 :
  a := plot( f1, x = -2 π..2 π, color = red, tickmarks = [0, 0]) :
  b := plot( f2, x = -2 π..2 π, color = blue, tickmarks = [0, 0]) :
  c := plot( f3, x = -2 π..2 π, color = green, tickmarks = [0, 0]) :
  e := plot( f4, x = -2 π..2 π, color = magenta, tickmarks = [0, 0]) :
  g := plot( f5, x = -2 π..2 π, color = brown, tickmarks = [0, 0]) :
  display( [a, b, c, e, g ]);
```



```
> plot(f6^2, x = -2 π..2 π, color = black, thickness = 2, tickmarks = [0, 0],
      title = ["\n Probability Density \n"], font = [times, bold, 14]);
  'f(x)^2' = f6^2;
```



$$f(x)^2 = \left(\frac{\sin(1.10\,\pi\,x)}{\pi\,x} + \frac{\sin(1.25\,\pi\,x)}{\pi\,x} + \frac{\sin(1.50\,\pi\,x)}{\pi\,x} + \frac{\sin(1.75\,\pi\,x)}{\pi\,x} \right)^2 \quad (1)$$

```
>
```