

# Delta Dirac

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Clear[f]
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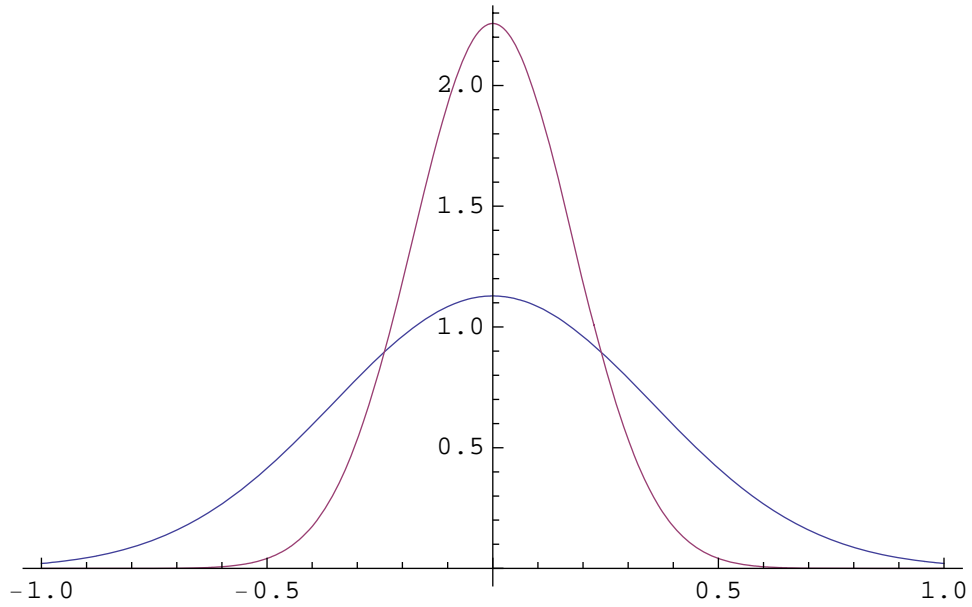
## Dirac Delta:

$$f[1] = \frac{n e^{-n^2 x^2}}{\sqrt{\pi}};$$
$$f[2] = \frac{n}{\sqrt{\pi} (1 + n^2 x^2)};$$
$$f[3] = \frac{\text{Sin}[n x]}{\pi x};$$

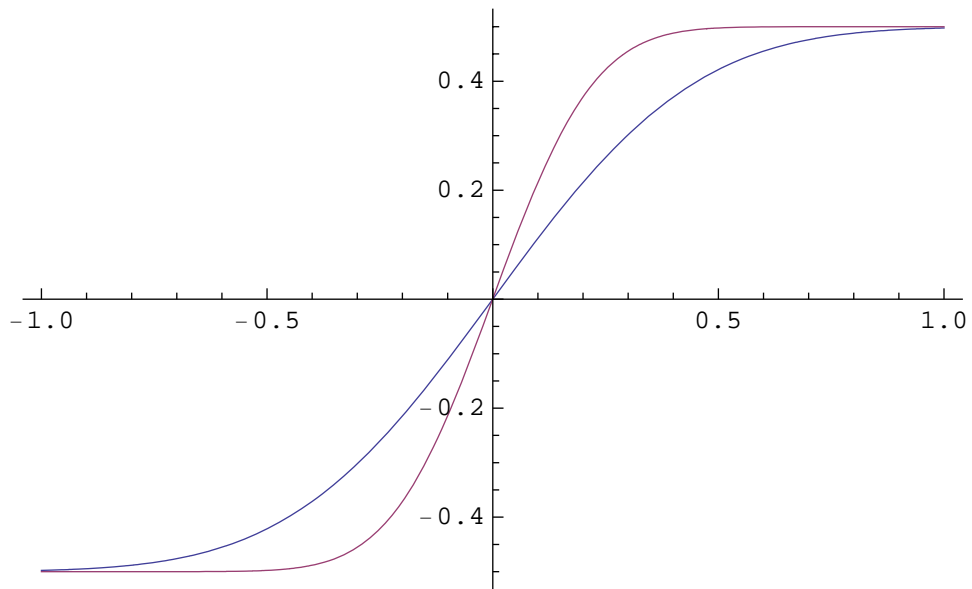
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Do[Print["====="]; ftemp = f[i];  
Print["f[" , i, "] = " , ftemp];  
Print[Plot[Evaluate[Table[ftemp, {n, 2, 4, 2}]], {x, -1, 1},  
PlotRange -> All]]; iftemp =  $\int$  ftemp dx;  
Print["int-f[" , i, "] = " , iftemp];  
Print[Plot[Evaluate[Table[iftemp, {n, 2, 4, 2}]], {x, -1, 1},  
PlotRange -> All]], {i, 1, 3}]
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$$f[1] = \frac{e^{-n^2 x^2} n}{\sqrt{\pi}}$$

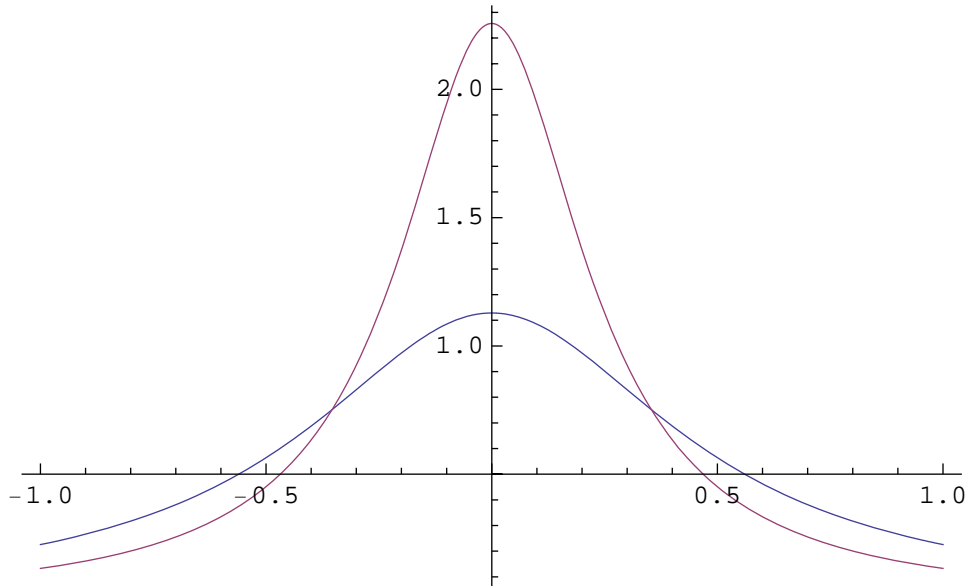


$$\text{int-f}[1] = \frac{1}{2} \text{Erf}[n x]$$

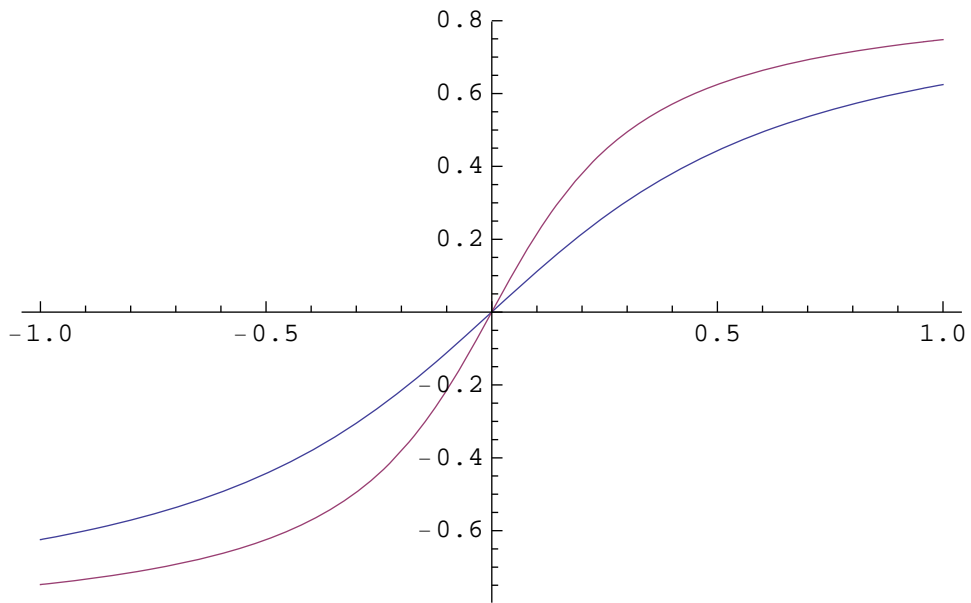


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$$f[2] = \frac{n}{\sqrt{\pi} (1 + n^2 x^2)}$$

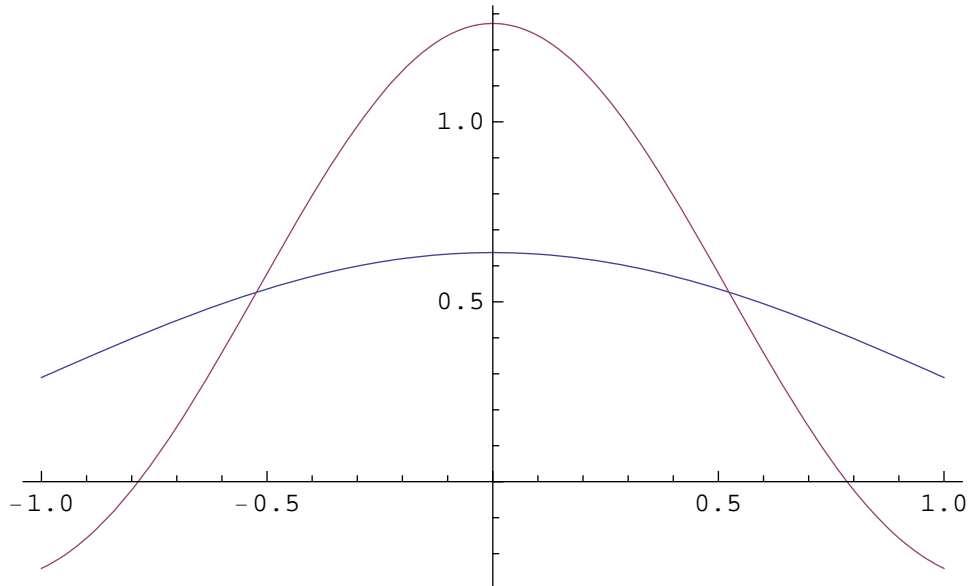


$$\text{int-f}[2] = \frac{\text{ArcTan}[n x]}{\sqrt{\pi}}$$



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$$f[3] = \frac{\text{Sin}[n x]}{\pi x}$$



$$\text{int-f}[3] = \frac{\text{SinIntegral}[n x]}{\pi}$$

