Subject: Re: plot dirac delta function?
Posted by swingnut on Sun, 30 Jul 2006 05:17:40 GMT
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Ah, I see we're about to head off into the realm of defining functions, ever a popular discussion (not the least of which is because I relish the opportunity to learn more about it, not being a mathematician). Why do you say this? In plasma kinetic theory a while back, the prof give us the pop quiz about the value of particle distributions made from sums of delta functions. As with the "How do you put an elephant into the refrigerator?" test, everyone jumped to the wrong answer since the integral of the Dirac delta is 1. The function wasn't a sum of integrals, its a sum of deltas, so the value of the distribution at a particle's parameters in the phase space we were working in is infinity.

Looking at a Dirac delta as the limit of a sequence of Guassians as the width of the guassian goes to zero with the constraint that the integral of the Dirac goes to one also provides the value of infinity, because that's the only way an integral could possibly be non-zero when its upper and lower bounds are the same.