Subject: Re: plot dirac delta function?
Posted by James Kuyper on Wed, 19 Jul 2006 19:20:16 GMT
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Benjamin Hornberger wrote:
> kuyper@wizard.net wrote:
>>
>> The Dirac delta function is defined by the following equations:
>>
>> delta(x) = 0 if x ne 0
>>
>> integral of delta(x) dx from x0 to x1 = 1, if x0 < 0 and x1 > 0
>>
>> Notice that this definition fails to identify explicitly the value of
>> delta(0). That's because there's no meaningful value that can be
>> assigned to delta(0). The best you can do is to call it infinity, but
>> even that's not quite right, for reasons that I don't remember right
>> now.
>
> I think that (the last paragraph) applies to the continuous case. In the
> discrete case, it follows quite clearly from the two equations above
> that the delta function must be an array which is 1 for the center (more
> on that below) and zero otherwise. Two examples:

In my experience, the term "Dirac delta function" is restricted to what
you call the continuous case. The corresponding thing for the discrete
case is referred to as the Kroenecker delta. See, for example,
< http://www.physics.umd.edu/courses/Phys374/fall04/hw/MP27.ht m>.

I think it's even less meaningful (though much easier!) to plot the
kroenecker delta than the Dirac delta function. It's only defined on a
discrete set of points, so drawing lines between the consecutive points
of the plot would be inappropriate.