Subject: Re: An approximation of the cumulative integral of Y
Posted by Vince Hradil on Sat, 11 Jul 2009 16:43:40 GMT
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On Jul 11, 12:39 am, Vijay Shah <vijayps...@gmail.com> wrote:
> Hi,
> Is there any subroutine in IDL that allows to computes an
> approximation of the cumulative integral of Y via the trapezoidal
> method (with unit spacing)?
>
> Regards,
> Vijay

INT_TABULATED() works nicely (not really what you want, but better?)

It would be easy enough to write using SHIFT(). Something like

y2 = (y+shift(y,1))/2
x2 = (x+shift(x,1))/2
integral = total(x2*y2); or total(x2*y2,/cumulative)

You have to figure out how to deal with the "ends" from the shift...

Subject: Re: An approximation of the cumulative integral of Y
Posted by Vince Hradil on Sat, 11 Jul 2009 17:07:49 GMT
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On Jul 11, 11:43 am, Vince Hradil <vincehra...@gmail.com> wrote:
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Let's see, I think that should be:
x2 = x-shift(x,1)
or use delta x if it doesn't change

Subject: Re: An approximation of the cumulative integral of Y
Posted by Vijay Shah on Sun, 12 Jul 2009 15:58:26 GMT
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Hi Vince,
Thanks for the info.
I checked the int_tabulated. But the IDL help files indicate "Data that is highly oscillatory requires a sufficient number of samples for an accurate integral approximation."
I am not sure for 10 to 12 samples what would work best. I will search google to find more information on this. If you know of any paper about comparison, please feel to send it.

Regards,
Vijay

On Jul 11, 1:07 pm, Vince Hradil <vincehra...@gmail.com> wrote:
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Subject: Re: An approximation of the cumulative integral of Y
Posted by Chris[6] on Sun, 12 Jul 2009 19:40:05 GMT
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On Jul 12, 5:58 am, Vijay Shah <vijayps...@gmail.com> wrote:
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Check out
http://idlastro.gsfc.nasa.gov/ftp/pro/math/qtrap.pro

Chris

Subject: Re: An approximation of the cumulative integral of Y
Posted by Jeremy Bailin on Sun, 12 Jul 2009 20:00:18 GMT
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On Jul 12, 11:58 am, Vijay Shah <vijayps...@gmail.com> wrote:
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That statement is not particular to INT_TABULATED, but is quite
general: if your sampling is insufficient, the numerical integral will
be inaccurate no matter what method you use.

-Jeremy.

Subject: Re: An approximation of the cumulative integral of Y
Posted by Vijay Shah on Tue, 14 Jul 2009 05:23:21 GMT
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Thanks for the the info. I don't have function but only have series of
dataset to integrate.
I did find http://idlastro.gsfc.nasa.gov/ftp/pro/math/tsum.pro
that allows takes the discrete sequence.

.
On Jul 12, 4:00 pm, Jeremy Bailin <astroco...@gmail.com> wrote:
> On Jul 12, 11:58 am, Vijay Shah <vijayps...@gmail.com> wrote:
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