Subject: Re: Help with numerical integration
Posted by Wox on Tue, 05 Dec 2006 09:28:32 GMT
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On 4 Dec 2006 14:31:47 -0800, "Dave" <Confused.Scientist@gmail.com>
wrote:

> Hi all,
>
> I have never been particularly fond of numerical integration and
> generally do it pretty infrequently these days. Nevertheless, I am
> trying to do a 'quick-and-dirty' atmospheric refraction/ray-trace
> calculation and I'm stumped on the integration. The integral reads:
>
>   s = \int_{r1}^{r2} (n(r) * r * dr) / sqrt(n(r)^2 - c^2)
>
> where c is a constant. The trouble I'm having is that n is a function
> of r. Thus, I have a set of discrete points for r:

I'm not sure why "n is a function of r" would be a problem for
numerical integration. As long as you can evaluate it, as you clearly
can, there is no problem. Or am I missing something?

You can for example use IDL's INT_TABULATED where
X=r and F = (n(r) * r) / sqrt(n(r)^2 * r^2 - c^2)