Subject: Re: Fredholm integral equation
Posted by Bill Nel on Thu, 03 Jul 2014 16:18:03 GMT
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On Wednesday, July 2, 2014 2:54:07 PM UTC-4, Gompie wrote:
> Thanks once again for the suggestion. I guess the following thing should work.
>
>
>
> Trapezoidal rule can be written as
>
>
>
> 0.5*[(x2-x1)f(x1) + (x3-x1)*f(x2) + (x4-x2)*f(x3) +...].
>
>
>
> Here f(x)=knownfunction*unknownfunction.
>
>
>
> The above expression is a ## multiplication of two vectors hence is respresentable as a expression you mentioned in your message (i.e knownVector = knownMatrix ## unknownVector)
>
> -GlanPlon

I may be misunderstanding your problem, but what I meant was that if you have

h(x) = Integral_dy{ f(x,y) g(y) }

this can be approximated as

h(i dx) = (1/dy) Sum_over_j{ f(i dx, j dy) g(j dy) }

where i = 0, 1, ...
j = 0, 1, ...
and dx, dy are your (equal) grid spacing. This is just a matrix equation

h[i] = (1/dy) f[i, j] g[j]

with h and f known, g unknown.