Subject: Re: function of two variables
Posted by black on Mon, 21 Mar 1994 14:01:57 GMT
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In article <CMtu54.5o@ireq.hydro.qc.ca>,
 <brooker@toka.ireq-ccfm.hydro.qc.ca> wrote:

[Stuff deleted]

> But what if now I had Z=2.*X + 3.*Y and I want to plot Z as X and Y both
> range from 0 to 10. A way to code this is
>
> X=findgen(101)/100.*10.
> Y=X
> num_y=n_elements(Y)
> num_x=n_elements(X)
> z=fltarr(num_x,num_y)
> for j=0,numy-1 do begin
>   z(*,j)=2.*X + 3.*Y(j)
>   endfor
> surface,Z,X,Y
>
> Very inefficient because of the loop!! Very slow!!
>
> Is there anyway to do this more efficiently?
>
> Thanks,
>   Peter Brooker
>   brooker@toka.ireq-ccfm.hydro.qc.ca

What you need are two two dimensional arrays that contain X and Y values. The size of number of X co-ords by number of Y co-ords. These arrays essentaially stor the X & Y values at each point on the grid. So the value in the elements in the X array change in one direction say along the rows, but stays consatnt in the other direction. The Y array does the opposite. Given that the Y=X in your code you only need to come up with one array, since Y is the transpose of X.

So the next trick is to come up with the X array. This is simply done by taking your existing X array and using the matrix multiply in the following way

1) create a 1d array that contains 1 of the size required - the number of Y
   indices call this UNITY

2) do X#UNITY.

This does what you want.

   John Black.