Subject: summation and 3d plot
Posted by Nicki on Tue, 27 Oct 2009 08:19:14 GMT
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Hey!
I have two problems... First of all I need to sum up something. it should be pretty easy but i just get really confused with my arrays.
first i have the following:

```
nx=findgen(64.)
ny=findgen(64.)
for i=0,63 do begin
for j=0,63 do begin
x0=(30./32.*(0.5+nx[i]))-30.
y0=(30./32.*(0.5+ny[j]))-30.
.....
N=findgen(10.)
r0=sqrt(x0^2+y0^2)
if (r0 gt 30.) then S=0 $   ; as it's an area of an circle with radius
30 (but not important for my problem)
else begin
for k=0,9 do begin
phi=N[k]*36*!pi/180
x=abs(x0*cos(phi)+y0*sin(phi))
y=-x0*sin(phi)+y0*cos(phi)
h=50.-y
deffs=sqrt(d^2+2/mu*tan(a/2*!pi/180))
S=deffs^2*(sin(atan(x/(h))))^3/(4*h)^2*100
deffr=d+alog(2)/mu*tan(a/2*!pi/180)
R=sqrt((h/f*ri)^2+(deffr*(h+f)/f)^2)
endfor
endelse
endfor
endfor
end
```

So what i wanna do now is summing up all "S" over k like "stot=s[k=0]+s [k=1]+....+s[k=9]" and then i want to have a 3 D plot of x0, y0 and stot (however i have no idea how to do that either...).
i know that a summation is usually done with "total(s)" but i don't know how to tell idl that it should be a summation over k. And i know that there are different ways how to do the 3D plot, but i don't really get the commands...
i actually only want to have a 3D surface plot...

Can somebody please help me out?

Cheers,
Nicki

Subject: Re: summation and 3d plot
Posted by David Fanning on Fri, 30 Oct 2009 04:00:04 GMT
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Jeremy Bailin writes:

> Can't you replace the for loops with:
>
> nnx = n_elements(nx)
> nny = n_elements(ny)
> nN = n_elements(N)
> x0 = rebin(reform(x0,nnx,1,1),nnx,nny,nN)
> y0 = rebin(reform(y0,1,nny,1),nnx,nny,nN)
> phi = rebin(reform(phi,1,1,nN),nnx,nny,nN)
> r0 = sqrt(x0^2 + y0^2)
> x = abs(x0*cos(phi) + y0*sin(phi))
> y = -x0*sin(phi) + y0*cos(phi)
> h = 50.-y
> deffs = sqrt(d^2 + 2./mu*tan(a/2.*!pi/180.))
> S = deffs^2 * sin(atan(x/h))^3 / (4.*h)^2 * 100.
> deffr = d + alog(2.)/mu*tan(a/2.*!pi/180.)
> R = sqrt((h/f*ri)^2 + (deffr*(h+f)/f)^2)

You gotta love people who have too much time on
their hands! :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: summation and 3d plot
Posted by penteado on Fri, 30 Oct 2009 04:12:50 GMT
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On Oct 30, 1:55 am, Jeremy Bailin <astroco...@gmail.com> wrote:
> Can't you replace the for loops with:
>
> nnx = n_elements(nx)
> nny = n_elements(ny)
> nN = n_elements(N)

> x0 = rebin(reform(x0,nnx,1,1),nnx,nny,nN)
> y0 = rebin(reform(y0,1,nny,1),nnx,nny,nN)
> phi = rebin(reform(phi,1,1,nN),nnx,nny,nN)
> r0 = sqrt(x0^2 + y0^2)
> x = abs(x0*cos(phi) + y0*sin(phi))
> y = -x0*sin(phi) + y0*cos(phi)
> h = 50.-y
> deffs = sqrt(d^2 + 2./mu*tan(a/2.*!pi/180.))
> S = deffs^2 * sin(atan(x/h))^3 / (4.*h)^2 * 100.
> deffr = d + alog(2.)/mu*tan(a/2.*!pi/180.)
> R = sqrt((h/f*ri)^2 + (deffr*(h+f)/f)^2)
>
> -Jeremy.

Yes, that is about what I was hinting at when I said it could be done without loops. But given the initial question, I thought that jumping directly to this level might make it difficult to understand.

Subject: Re: summation and 3d plot
Posted by Jeremy Bailin on Fri, 30 Oct 2009 17:09:53 GMT
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On Oct 30, 12:12 am, pp <pp.pente...@gmail.com> wrote:
> On Oct 30, 1:55 am, Jeremy Bailin <astroco...@gmail.com> wrote:
>
>
>
>
>
>
>> Can't you replace the for loops with:
>
>> nnx = n_elements(nx)
>> nny = n_elements(ny)
>> nN = n_elements(N)
>> x0 = rebin(reform(x0,nnx,1,1),nnx,nny,nN)
>> y0 = rebin(reform(y0,1,nny,1),nnx,nny,nN)
>> phi = rebin(reform(phi,1,1,nN),nnx,nny,nN)
>> r0 = sqrt(x0^2 + y0^2)
>> x = abs(x0*cos(phi) + y0*sin(phi))
>> y = -x0*sin(phi) + y0*cos(phi)
>> h = 50.-y
>> deffs = sqrt(d^2 + 2./mu*tan(a/2.*!pi/180.))
>> S = deffs^2 * sin(atan(x/h))^3 / (4.*h)^2 * 100.
>> deffr = d + alog(2.)/mu*tan(a/2.*!pi/180.)
>> R = sqrt((h/f*ri)^2 + (deffr*(h+f)/f)^2)
>
>> -Jeremy.

>
> Yes, that is about what I was hinting at when I said it could be done
> without loops. But given the initial question, I thought that jumping
> directly to this level might make it difficult to understand.

Oddly enough, I think this version is much more readable than the looped version... I think that's a sign of doing too mcuh IDL programming! ;-)

-Jeremy.
