Subject: Re: Create curves
Posted by Russell[1] on Fri, 16 Oct 2015 14:46:48 GMT
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This is probably going to sound more complicated than it actually is. But all you need to do is the rotation matrix to rotate your coordinate system.

https://en.wikipedia.org/wiki/Rotation_matrix

so if the center of your ellipse is at (xc,yc) then the coordinates of the new ellipse will be

```
theta=45.
s=sin(theta*!PI/180)
c=cos(theta*!PI/180.)
dx=x-xc
dy=y-yc

x = xc + c*dx+s*dy
y = yc  - s*dx+c*dy
```

and now you use the definition of an ellipse:

r^2 = (x/a)^2 + (y/b)^2

This is all tvellipse does. If you don't want to use tvellipse, then just open it up and you'll see pretty much the same equations there. I didn't test this cause I didn't understand exactly what you want, so you'll need to work it over a bit (but it's the correct idea). I think I used a negative angle (when wiki uses a positive one) and used the fact that sin is an odd function.

On Friday, October 16, 2015 at 9:41:08 AM UTC-4, g.na...@gmail.com wrote:

```
>  Hi
>
>  I created an ellipsoid shape as follows
>
>  NX=128
>  NY=128
>  Ellipxe = fltarr(NX,NY)
>
>  for i=0L, NX-1 do begin
>    for j=0L, NY-1 do begin
>          if (0.1*(j-50)^2.+0.23*(i-95)^2. LT 100) then begin
>      Ellipse[i,j] = 10.
>   endif
>    endfor
```

> endfor
> tvscl, Ellipse
>
>
> I wanted to change the direction of the ellipse to be diagonal (i.e. not plotted vertically). Does anyone knows how to do that?
>
>
> Also I found that the bean curve in Cartesian coordinates has the following form:
>
> (x^2+y^2)^2 = x^3+y^3
>
> I tried the following but it doesn't work
>
> NX=128
> NY=128
> Bean_curve = fltarr(NX,NY)
>
> for i=0L, NX-1 do begin
>   for j=0L, NY-1 do begin
>   if ((0.1*(j)^2.+0.23*(i)^2.)^2. EQ (0.1*(j)^3.+0.23*(i)^3.)) then begin
>   Bean_Curve[i,j] = 10.
>   endif
>   endfor
> endfor
>
> tvscl, bean_Curve
>
> Can anyone help with this?