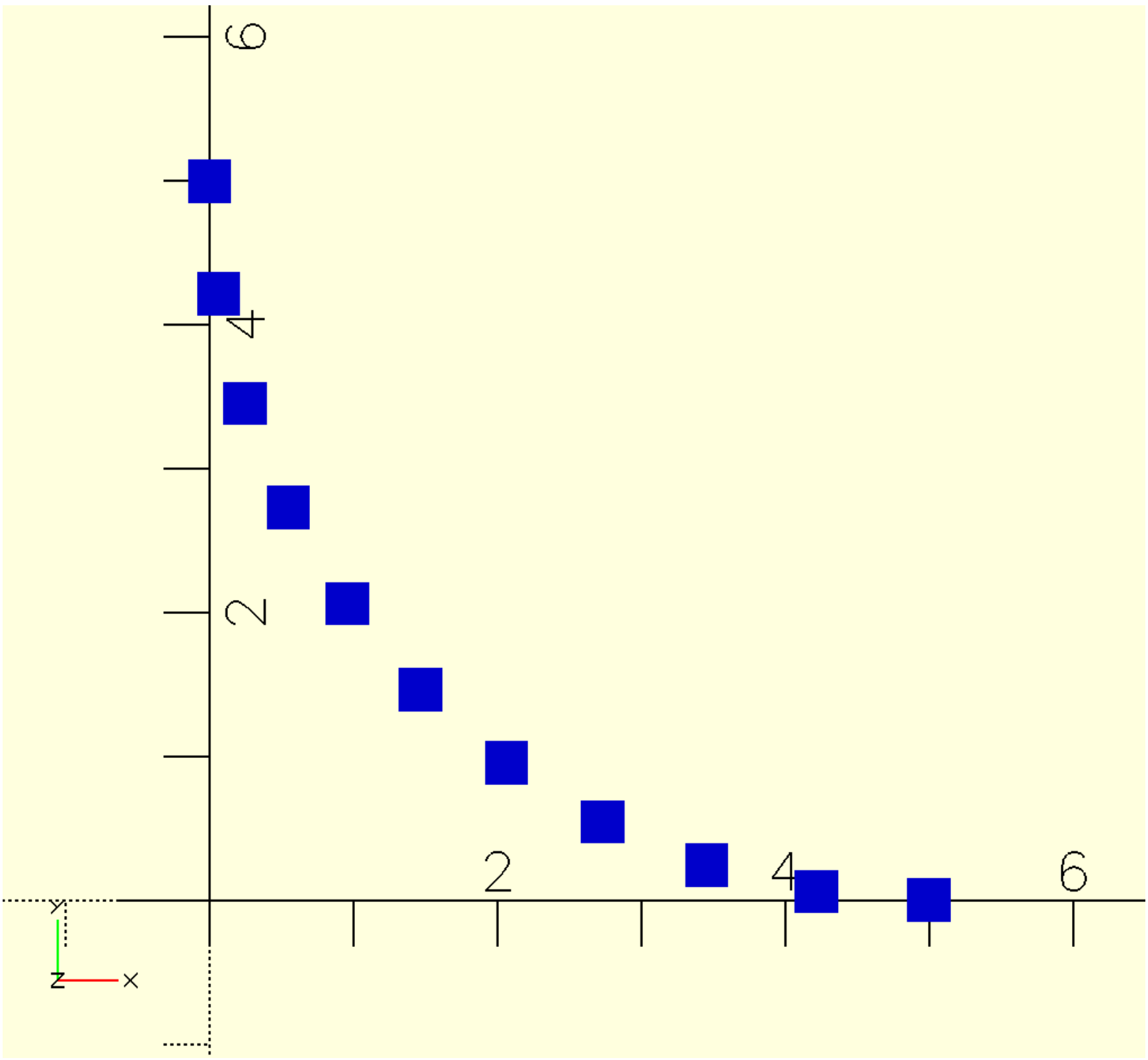
In [1]:
```
%reload_ext autoreload
%autoreload 2
from openscad3 import *
set_printoptions(suppress=True)
```

create an arc of the radius of fillet

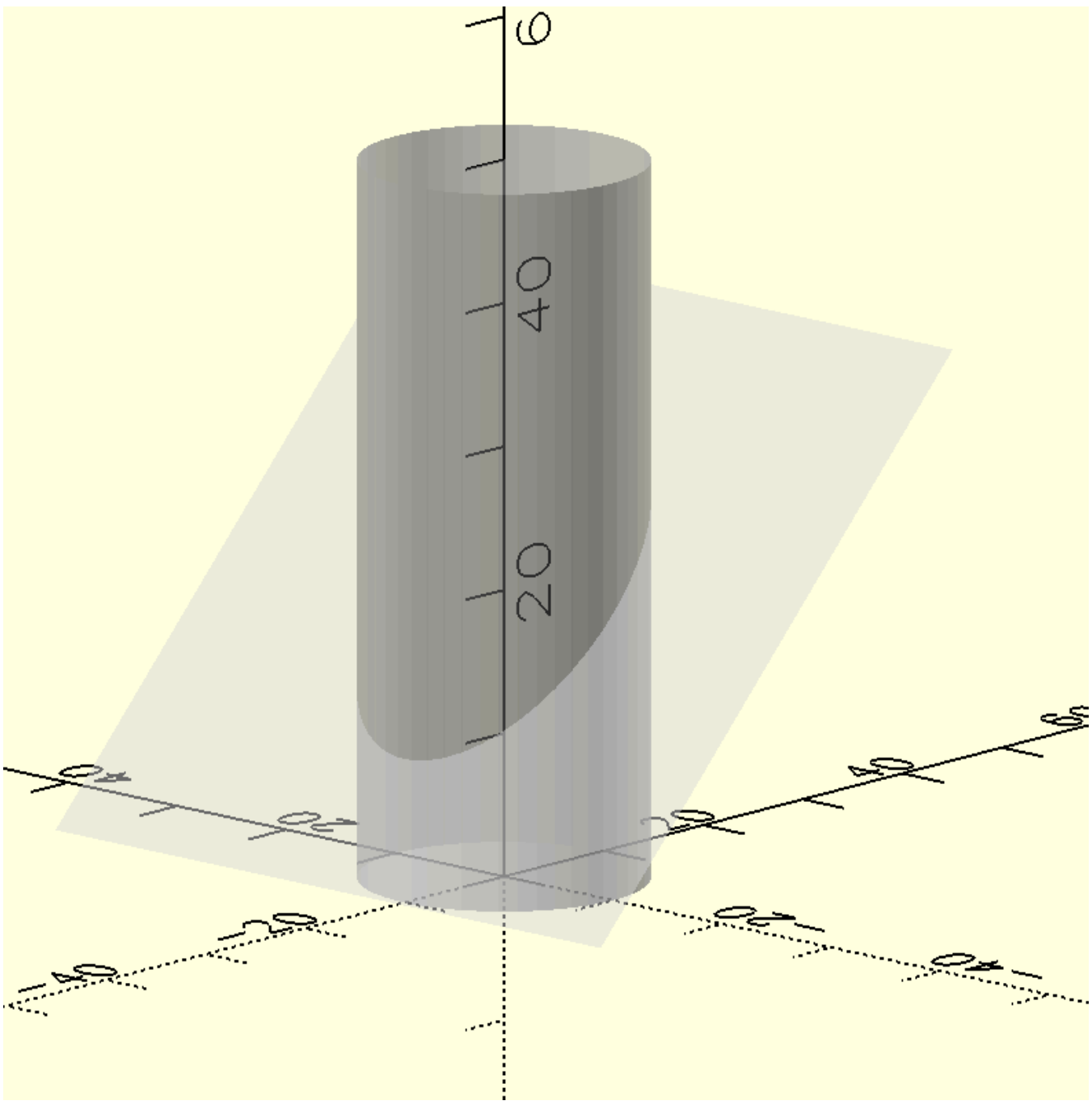
In [2]:
```
r=5
a1=cr2dt([[r,0],[-r,0,r],[0,r]],10)
fo(f'''
color("blue") points({a1},.3);
''')
```



create the surfaces between which fillet is required

In [19]:
```
r=5
a1=cr2dt([[r,0],[-r,0,r],[0,r]],10)
c1=cylinder(r=10,h=50)
p1=plane([-1,0,1],[50,50],[0,0,20])
fo(f'''
%{swp_surf(p1)}
%{swp(c1)}

''')
```

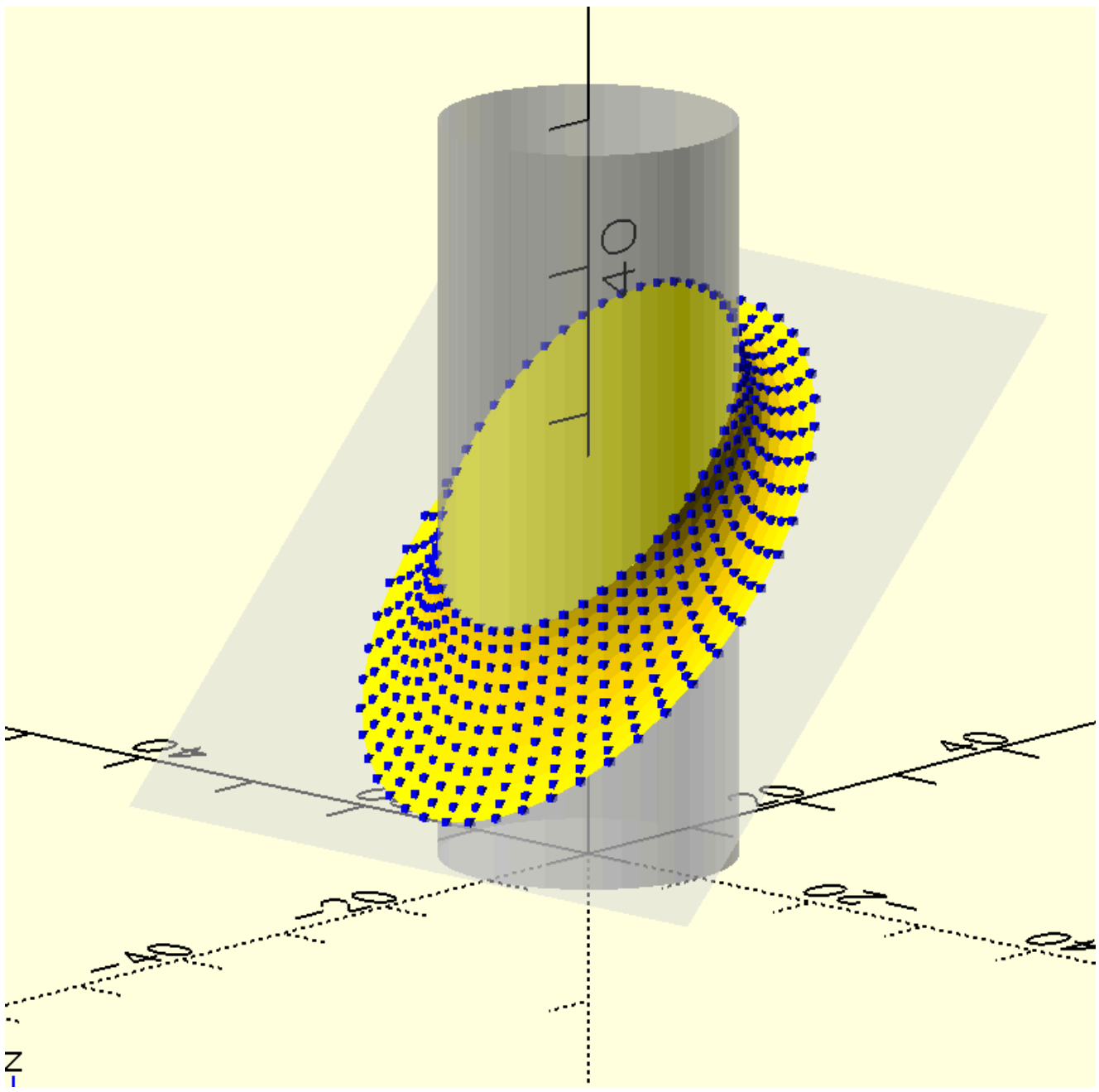


offset both surfaces as per the coordinates of the arc 'a1' and find intersections

In [21]:
```
r=5
a1=cr2dt([[r,0],[-r,0,r],[0,r]],10)
c1=cylinder(r=10,h=50)
p1=plane([-1,0,1],[50,50],[0,0,20])

c2=[cylinder(r=10+x,h=50) for (x,y) in a1]
p2=[surface_offset(p1,y) for (x,y) in a1]

fillet1=[ip_sol2sol(p2[i],c2[i]) for i in range(len(a1))]
fo(f'''
%{swp_surf(p1)}
%{swp(c1)}
//color("blue") for(p={fillet1}) points(p,.5);
{swp(fillet1)}
''')
```



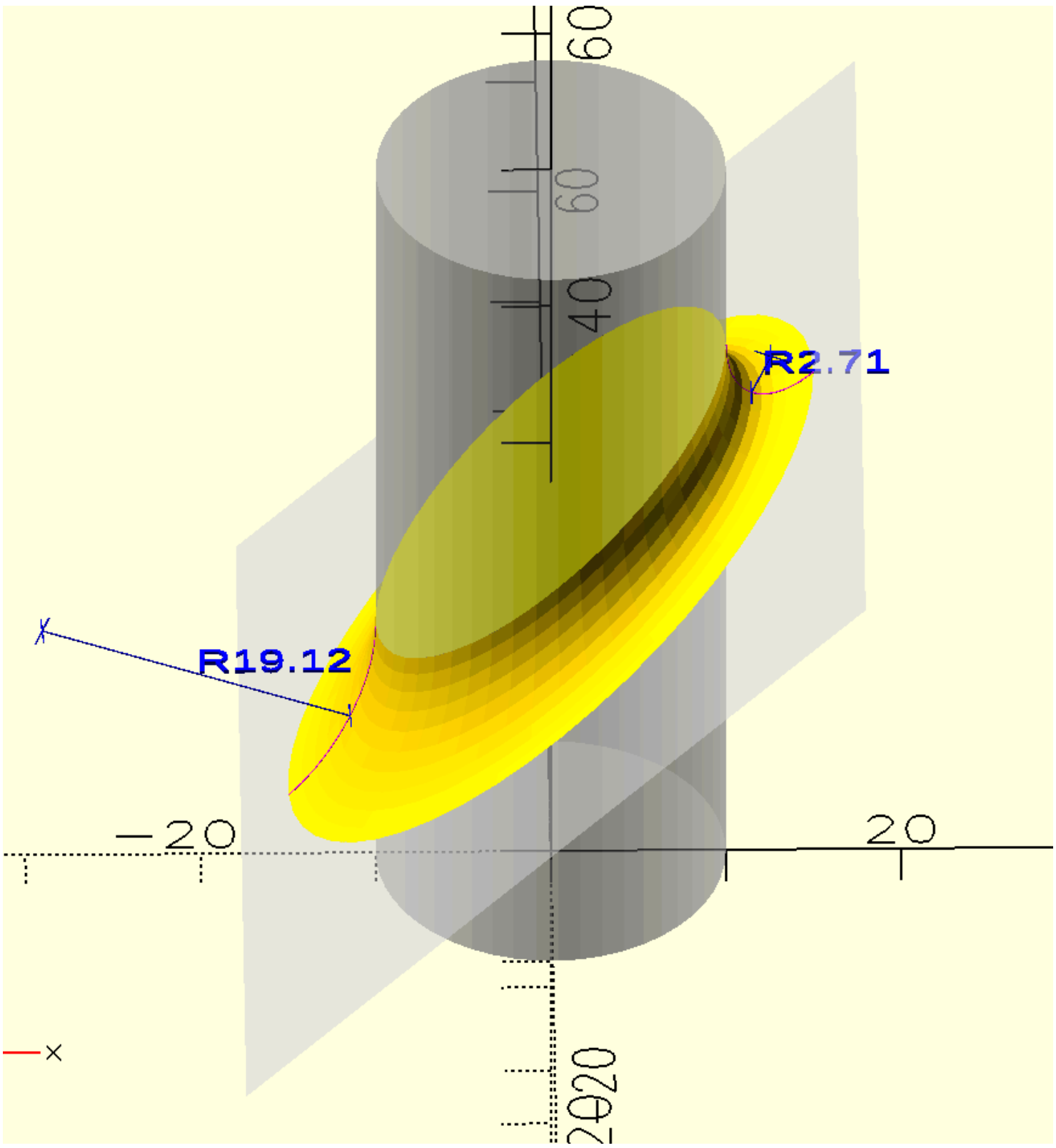
actual fillet radius does not match the initial radius

In [26]:
```
r=5
a1=cr2dt([[r,0],[-r,0,r],[0,r]],10)
c1=cylinder(r=10,h=50)
p1=plane([-1,0,1],[50,50],[0,0,20])

c2=[cylinder(r=10+x,h=50) for (x,y) in a1]
p2=[surface_offset(p1,y) for (x,y) in a1]

fillet1=[ip_sol2sol(p2[i],c2[i]) for i in range(len(a1))]
txt1=dim_radial(cpo(fillet1)[25],text_size=2)
txt2=dim_radial(cpo(fillet1)[0],text_size=2)

fo(f'''
%{swp_surf(p1)}
%{swp(c1)}
//color("blue") for(p={fillet1}) points(p,.5);
{swp(fillet1)}
{txt1}{txt2}
''')
```


60
60
40
R2.71
R19.12
−20
20
x
20