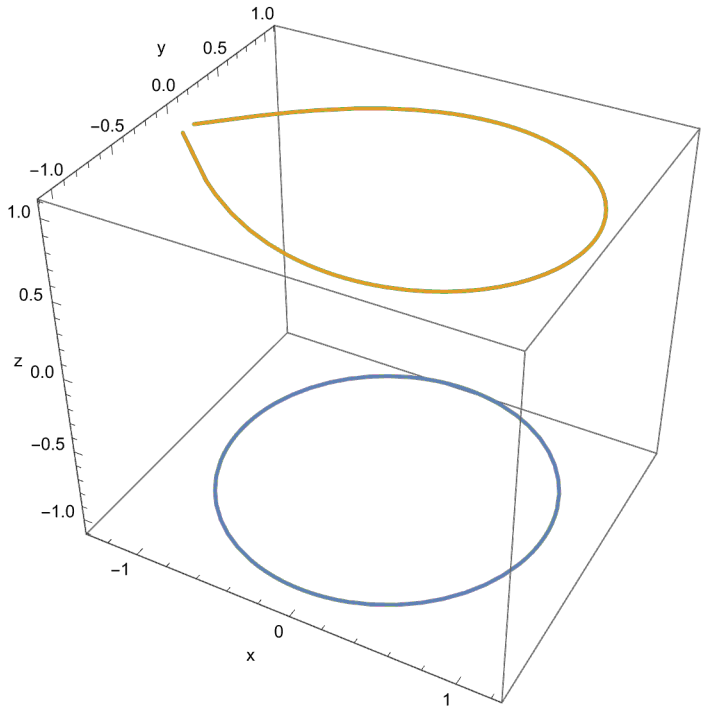
利用复变函数的映射生成曲面

In[ ]:=

```
f[z_] := 1.7 (Sqrt[z + 1] - 3/4)

c = {Cos[θ], Sin[θ]};
    余弦    正弦

l1 = Append[c, -1];
     追加

l2 = Append[ReIm@f[Complex @@ c], 1];
     追加    实部…    复数

ParametricPlot3D[{l1, l2}, {θ, 0, 2 π}, AxesLabel → {"x", "y", "z"}]
绘制三维参数图                                    坐标轴标签
```

Out[ ]=

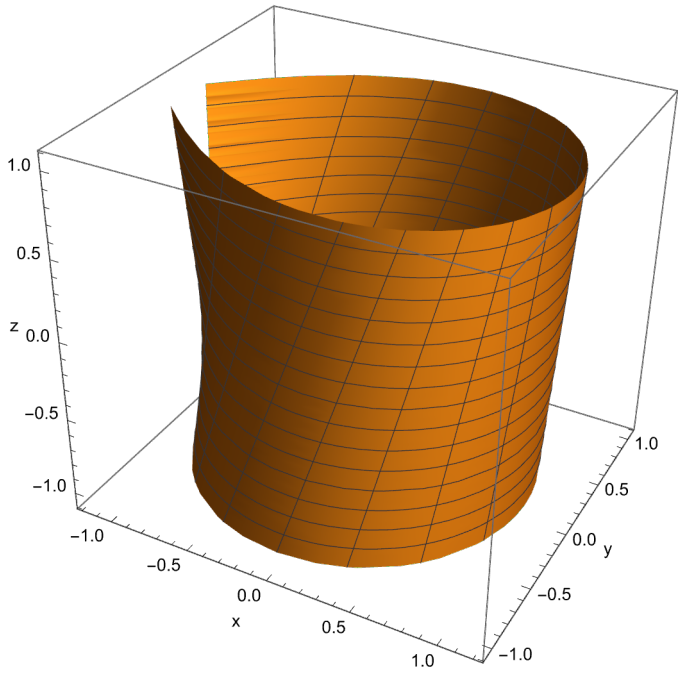


这里需要注意@的优先级大于@@

拔高成曲面

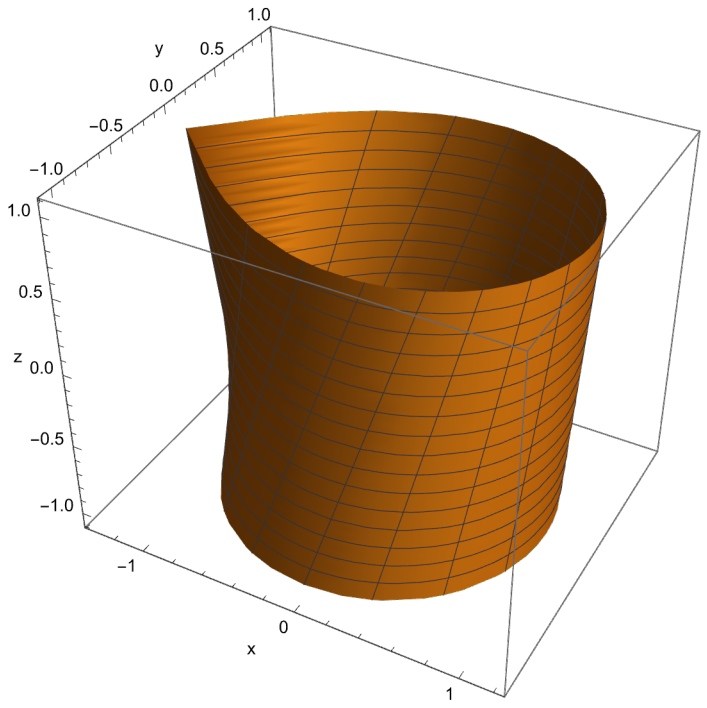
In[ ]:=
```
ParametricPlot3D[{v l2 + (1 - v) l1}, {θ, 0, 2 π}, {v, 0, 1}, AxesLabel → {"x", "y", "z"}]
```
绘制三维参数图 坐标轴标签

Out[ ]=



In[ ]:=
```
ParametricPlot3D[{v Append[ReIm@f[Complex @@ c], 1] + (1 - v) l1},
  {θ, 0, 2 π}, {v, 0, 1}, AxesLabel → {"x", "y", "z"}]
```
绘制三维参数图 追加 实部… 复数 坐标轴标签

Out[ ]=



为什么不是开口?

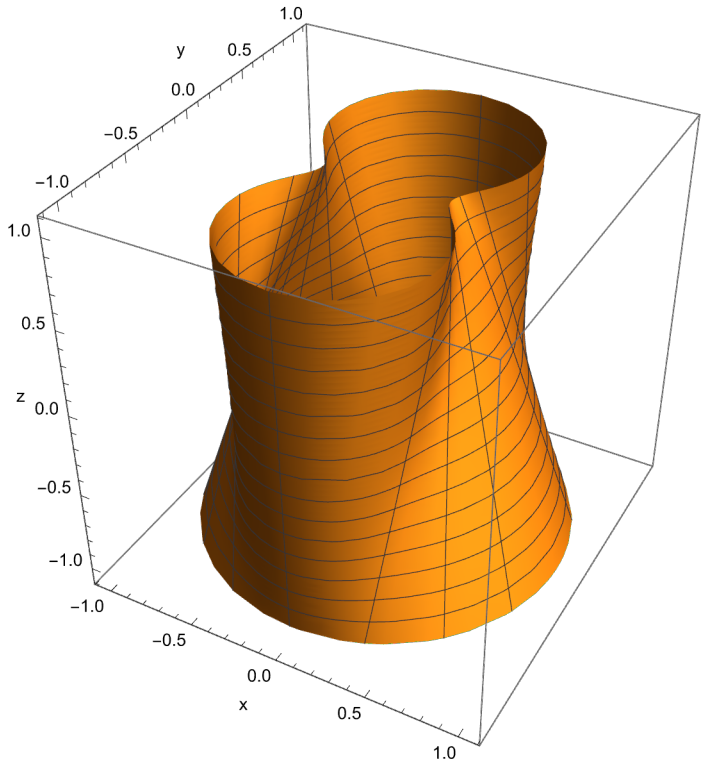
In[ ]:=
```
f[-1]
```

Out[ ]=
```
-1.275
```

包装为函数

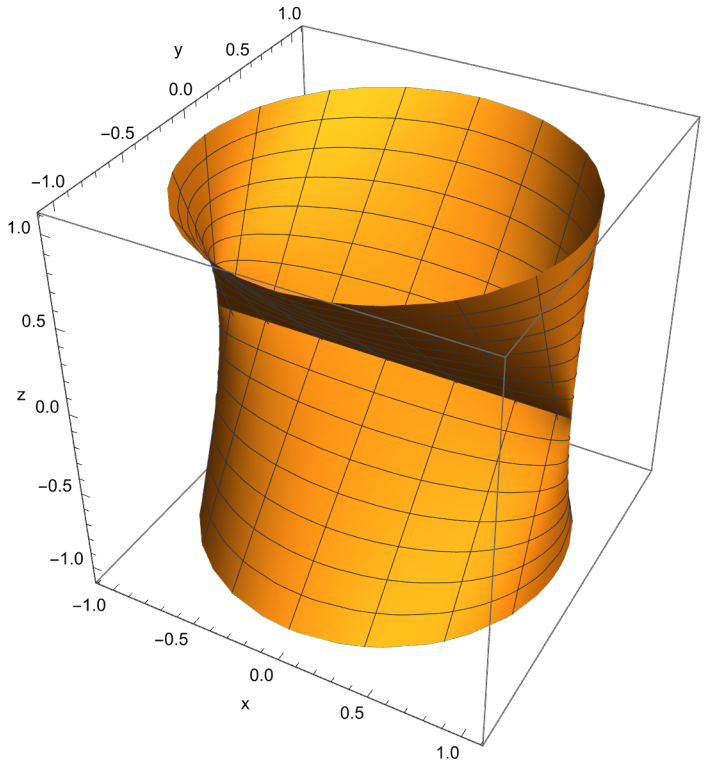
In[ ]:=
```
lofting[l1_, l2_, u_] := ParametricPlot3D[{v l1 + (1 - v) l2},
                                  绘制三维参数图
  u, {v, 0, 1}, AxesLabel → {"x", "y", "z"}, PlotPoints → 30]
                  坐标轴标签                    绘图点
loftWithCircle[f_] := Block[{c}, c = {Cos[θ], Sin[θ]};
                            块              余弦    正弦
  lofting[Append[c, -1], Append[ReIm@f[Complex @@ c], 1], {θ, 0, 2 π}]]
          追加             追加    实部…   复数
loftWithCircle[Nest[Sin, #, 3] / 2 &]
                  嵌套  正弦
```

Out[ ]=



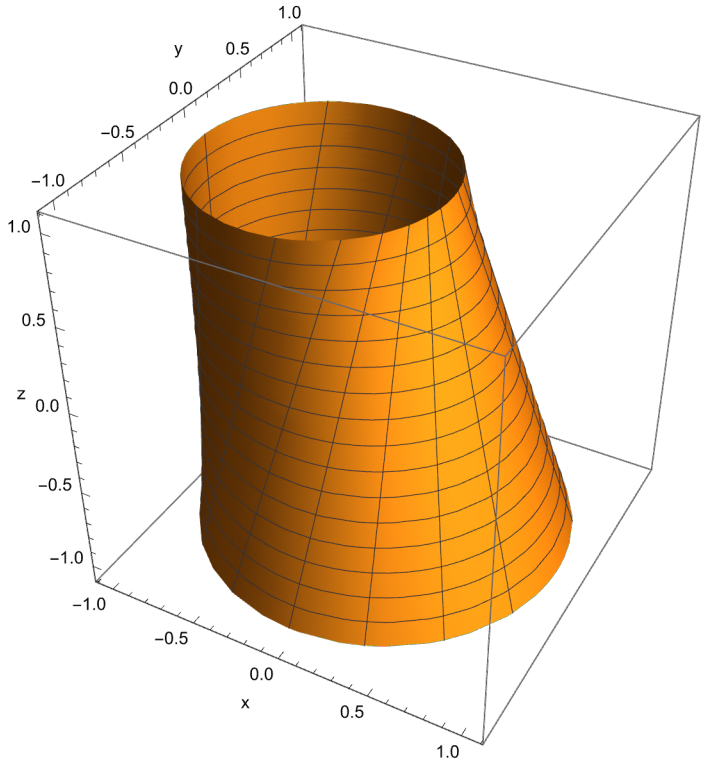
In[ ]:=
```
loftWithCircle[1 / # &]
```

Out[ ]=



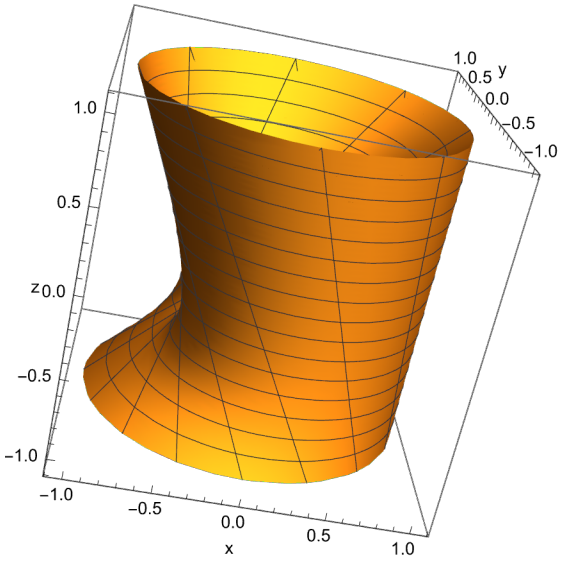
In[ ]:=
```
loftWithCircle[# / (# + 2) &]
```

Out[ ]=



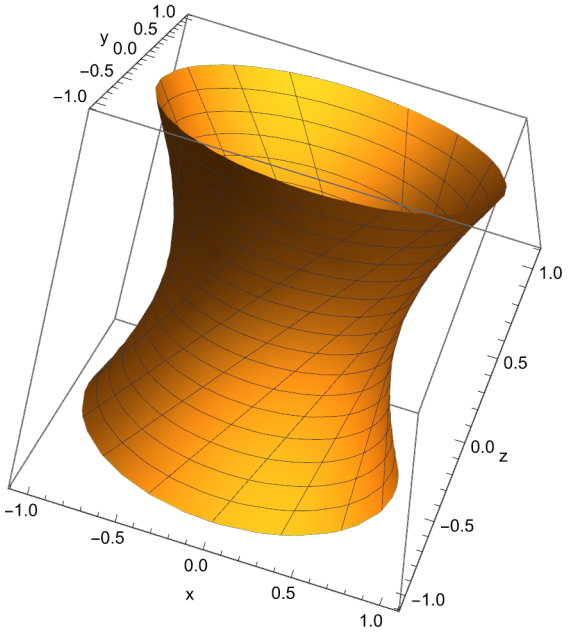
In[ ]:=
```
loftWithCircle[#^2 &]
```

Out[ ]=



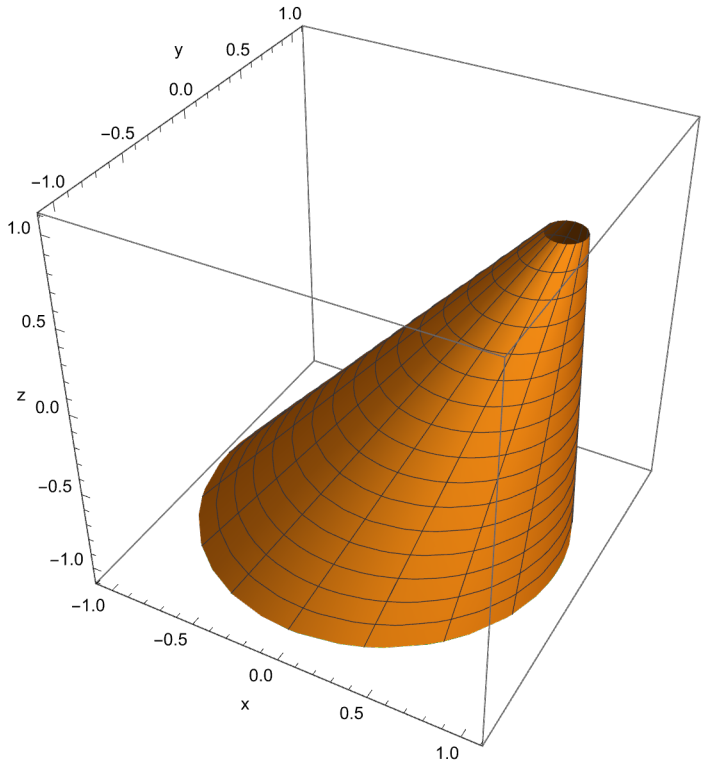
In[ ]:=
```
loftWithCircle[# I &]
```
虚数i

Out[ ]=



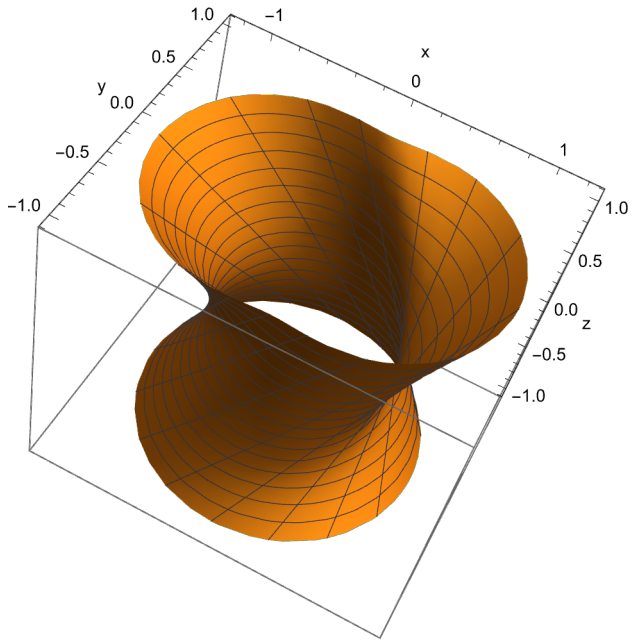
In[ ]:=
```
loftWithCircle[#/10 - 1 + 1 &]
```

Out[ ]=



In[ ]:=
```
loftWithCircle[I Sin[#] &]
```
正弦

Out[ ]=



In[ ]:=
```
loftWithCircle[Exp[5 I π / 6] Sin[#] &]
```
指数形式 正弦

Out[ ]=