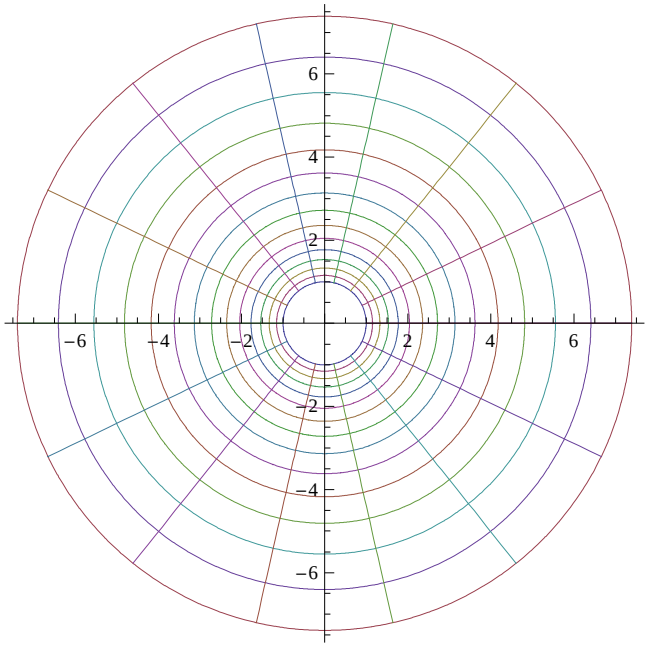
In[1]:=
```
Clear["Global`*"]; Off[General::obspkg]; Off[General::newpkg];
Needs["Graphics`ComplexMap`"];
```

In[3]:=
```
?CartesianMap
```

CartesianMap[f, {x0, x1, (dx)}, {y0, y1, (dy)}] plots the image of the cartesian coordinate lines under
the function f. The default values of dx and dy are chosen so that the number of lines is equal to the value of the option Lines.

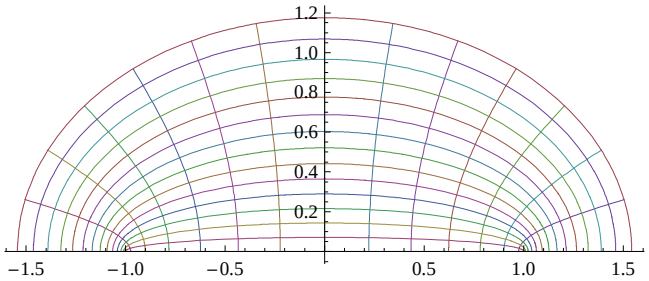
In[4]:=
```
CartesianMap[Exp, {0, 2}, {0, 2 π}]
```

Out[4]=



In[5]:=
```
CartesianMap[Cos, {π, 2 π}, {0, 1}, PlotStyle -> AbsoluteThickness[0.1]]
```

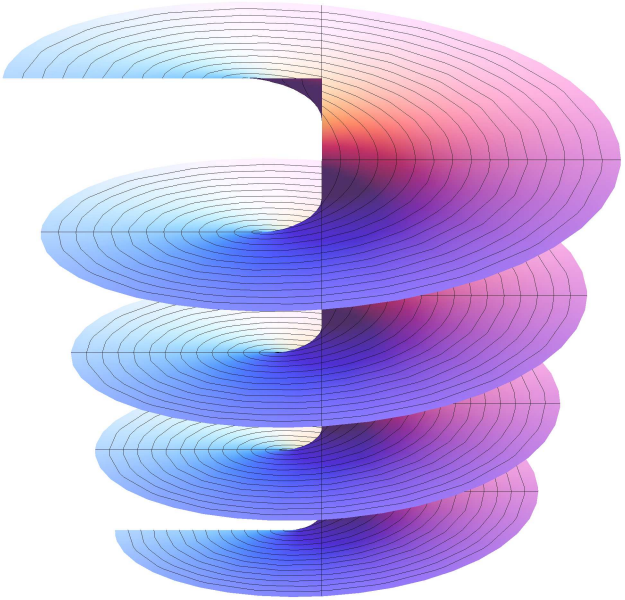
Out[5]=



In[6]:=
```
viewLogSurface[n_Integer, resolution_Integer] :=
ParametricPlot3D[
{r * Cos[theta], r * Sin[theta], theta},
{r, 0, 2}, {theta, 0, 2 * n * Pi},
PlotPoints -> {resolution, resolution * n},
Boxed -> False, Axes -> False, AspectRatio -> 1,
ViewPoint -> {0, 0.7, 2}]
```

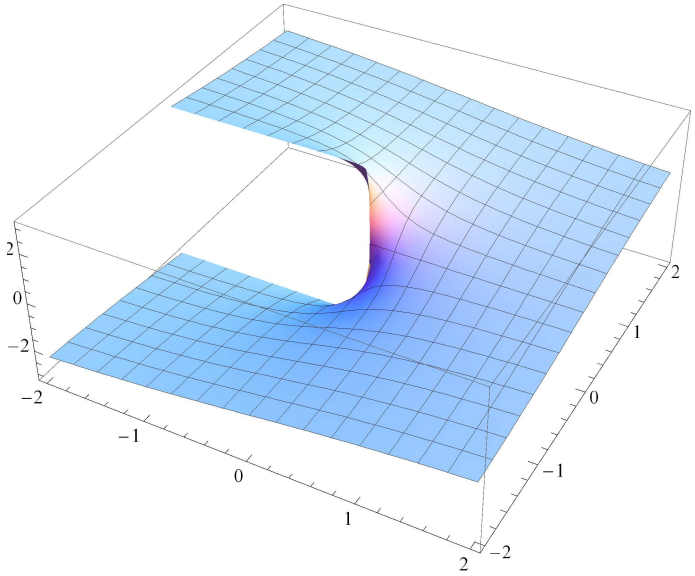
In[7]:=
```
viewLogSurface[4, 20]
```

Out[7]=



In[8]:=
```
Plot3D[Im[Log[(x + I * y)]], {x, -2, 2}, {y, -2, 2}, PlotPoints → 30]
```

Out[8]=

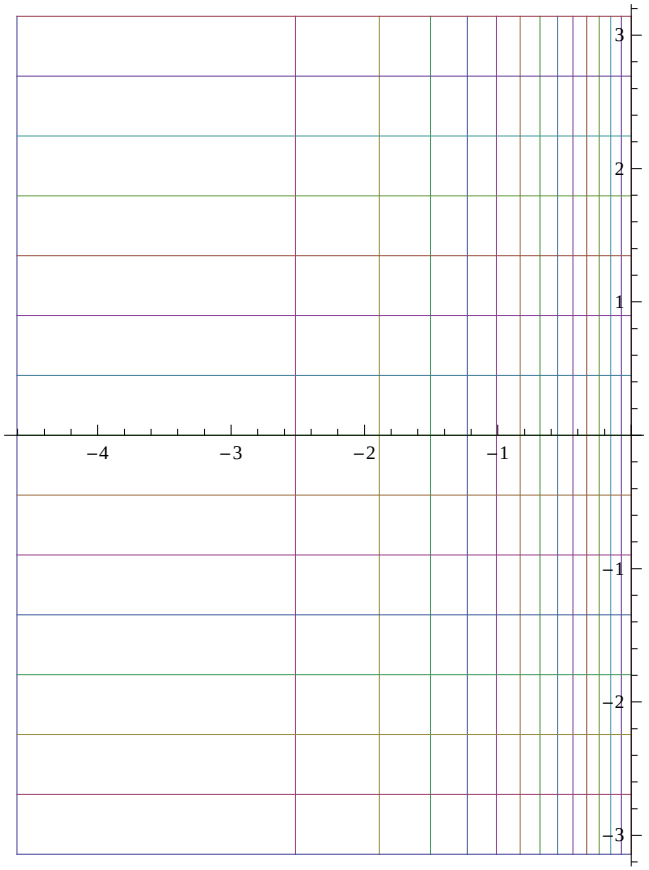


In[9]:=
```
? PolarMap
```

PolarMap[f, {r0:0, r1, (dr)}, {phi0, phi1, (dphi)}] plots the image of the polar coordinate lines under the function f. The default for the phi range is {0, 2Pi}. The default values of dr and dphi are chosen so that the number of lines is equal to the value of the option Lines.

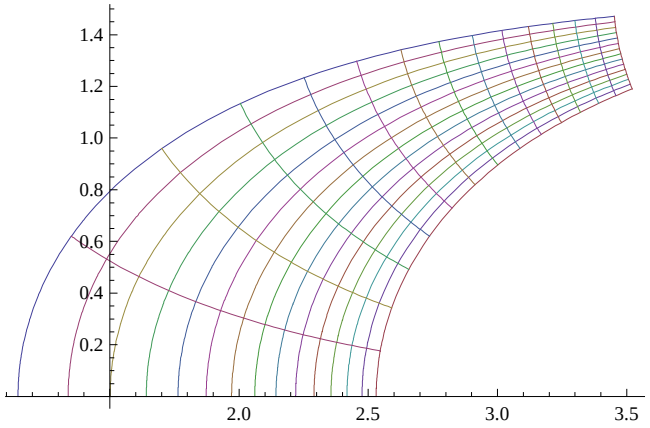
In[10]:=
```
PolarMap[Log, {0.01, 1}, {-π, π}, PlotRange → All]
```

Out[10]=



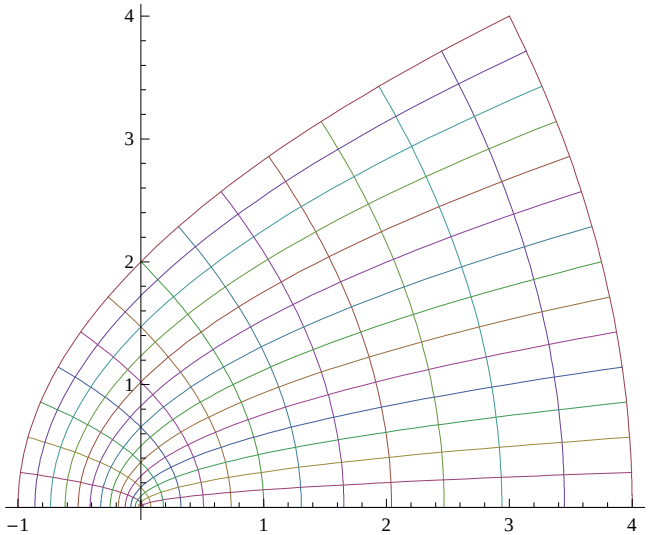
In[11]:=
```
CartesianMap[Log, {Pi, 4 Pi}, {0, 10 Pi}, PlotRange → All, PlotStyle -> AbsoluteThickness[0.1]]
```

Out[11]=



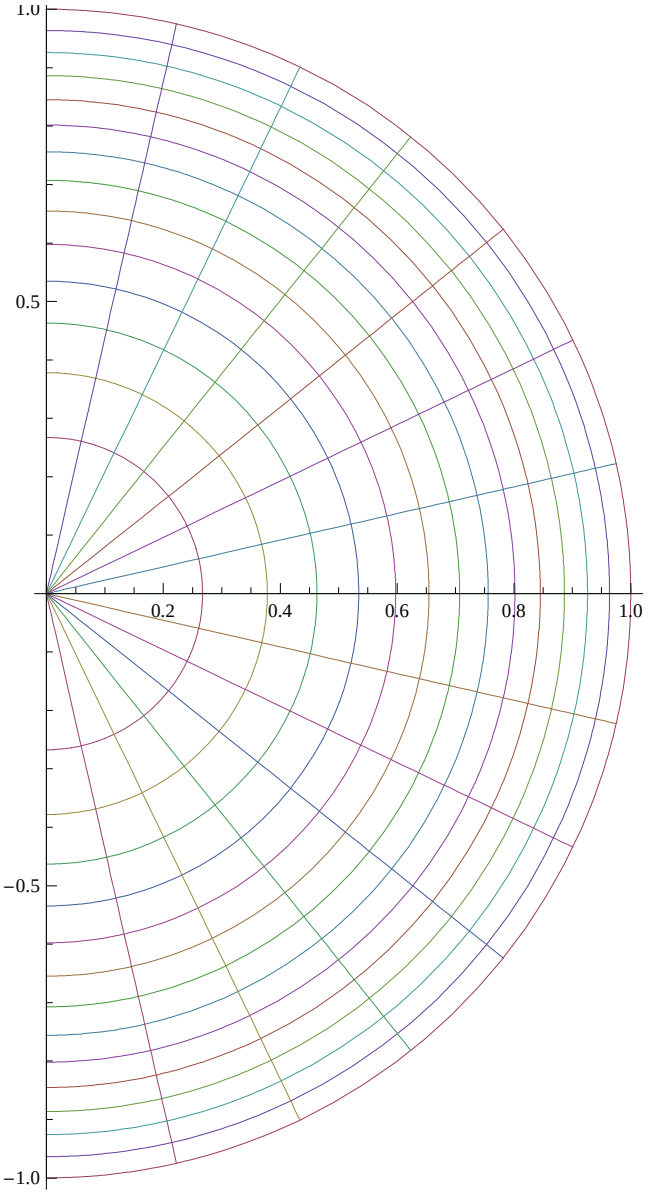
In[12]:=
```
f[z_] := z^2;
CartesianMap[f, {0, 2}, {0, 1}, PlotRange → All, PlotStyle -> AbsoluteThickness[0.1]]
```

Out[13]=



In[14]:=
```
PolarMap[Sqrt, {0, 1}, {-Pi, Pi}, PlotRange → All, PlotStyle -> AbsoluteThickness[0.1]]
```

Out[14]=



In[15]:=
```
ArcCos[Cos[4.5]]
```

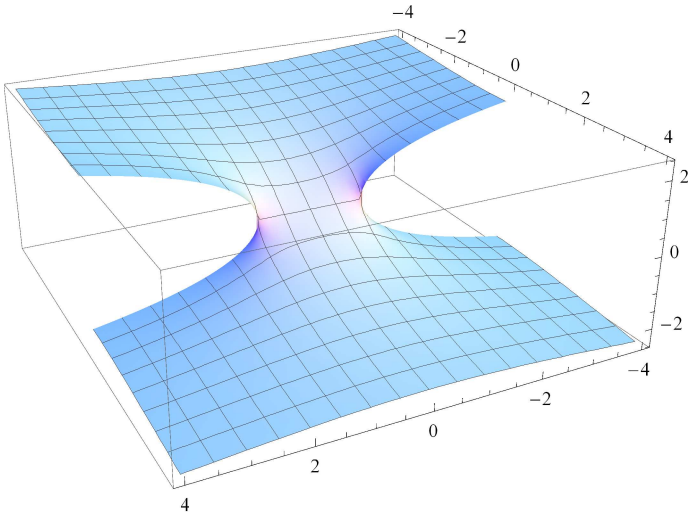
Out[15]=
```
1.78319
```

In[16]:=
```
{ArcCos[2 + 0.1 I], ArcCos[2 - 0.1 I]}
```

Out[16]=
```
{0.0576392 - 1.31888 i, 0.0576392 + 1.31888 i}
```

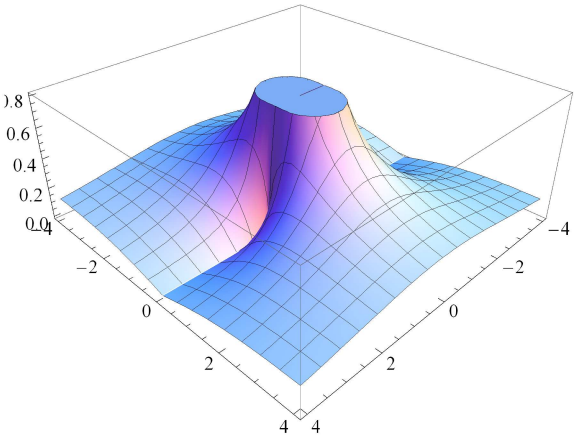
In[17]:=
```
Plot3D[Im[ArcCos[x + I y]], {x, -4, 4}, {y, -4, 4}, PlotPoints → 30, ViewPoint → {1, 2, 1}]
```

Out[17]=

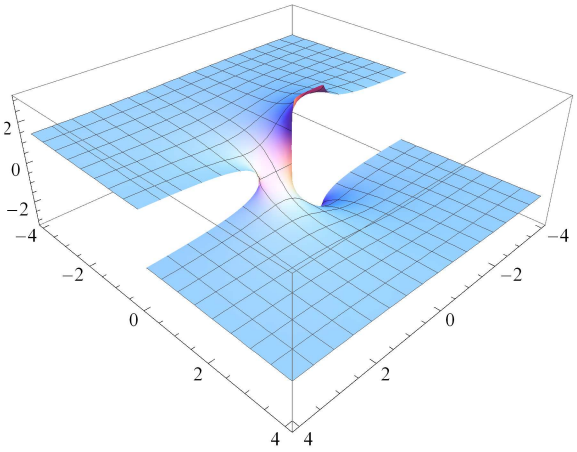


In[18]:=
```
viewReImSurfaces[f_, x1_, x2_] := Show[GraphicsGrid[
   {{Plot3D[Re[f[x + i y]], {x, -4, 4}, {y, -4, 4}, PlotPoints → 30,
      ViewPoint → {x1, x2, 1}, DisplayFunction → Identity]},
    {Plot3D[Im[f[x + i y]], {x, -4, 4}, {y, -4, 4}, PlotPoints → 30,
      ViewPoint → {x1, x2, 1}, DisplayFunction → Identity]}},
   Spacings → Scaled[0.1`], ImageSize → 72 × 4]]
```

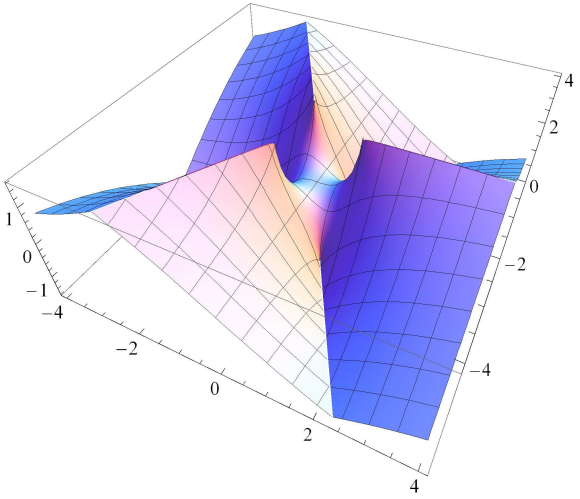
In[19]:=
```
viewReImSurfaces[ArcSech, 1.2, 1.2]
```



Out[19]=



In[20]:=
```
g[z_] := ArcSin[z^3];
viewReImSurfaces[g, 0.5, -1]
```



Out[21]=