In[1]:=
```
Clear["Global`*"];
f[z_] := 1/(z (z - 1));
```

In[3]:=
```
Series[f[z], {z, 0, 5}]
```

Out[3]= $-\frac{1}{z} - 1 - z - z^2 - z^3 - z^4 - z^5 + 0[z]^6$

In[4]:=
```
Series[f[z], {z, 2, 5}]
```

Out[4]= $\frac{1}{2} - \frac{3(z-2)}{4} + \frac{7}{8}(z-2)^2 - \frac{15}{16}(z-2)^3 + \frac{31}{32}(z-2)^4 - \frac{63}{64}(z-2)^5 + 0[z-2]^6$

In[5]:=
```
Series[f[z], {z, ∞, 5}]
```

Out[5]= $\left(\frac{1}{z}\right)^2 + \left(\frac{1}{z}\right)^3 + \left(\frac{1}{z}\right)^4 + \left(\frac{1}{z}\right)^5 + 0\left[\frac{1}{z}\right]^6$

In[6]:=
```
s1 = Series[1/(1 - w), {w, 0, 3}]
```

Out[6]= $1 + w + w^2 + w^3 + 0[w]^4$

In[7]:=
```
s2 = w^2 * s1
```

Out[7]= $w^2 + w^3 + w^4 + w^5 + 0[w]^6$

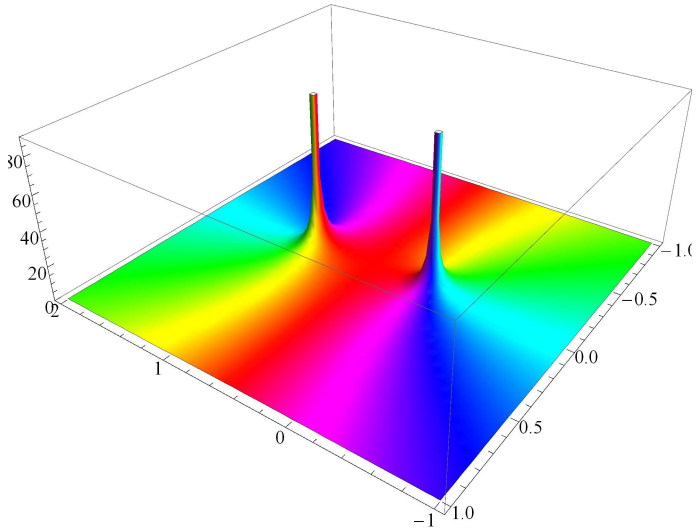
In[8]:=
```
s2 /. w → 1/z
```

Out[8]= $\left(\frac{1}{z}\right)^2 + \left(\frac{1}{z}\right)^3 + \left(\frac{1}{z}\right)^4 + \left(\frac{1}{z}\right)^5 + 0\left[\frac{1}{z}\right]^6$

In[9]:=
```
viewAbsSurface[func_, xrange_, yrange_, options___] :=
 Plot3D[Abs[func[x + I y]], xrange, yrange, options,
  ColorFunction → Function[{x, y, z}, Hue[Rescale[Arg[func[(x + I y)]],
      {-Pi, Pi}]]], ColorFunctionScaling → False, Mesh → False]
```

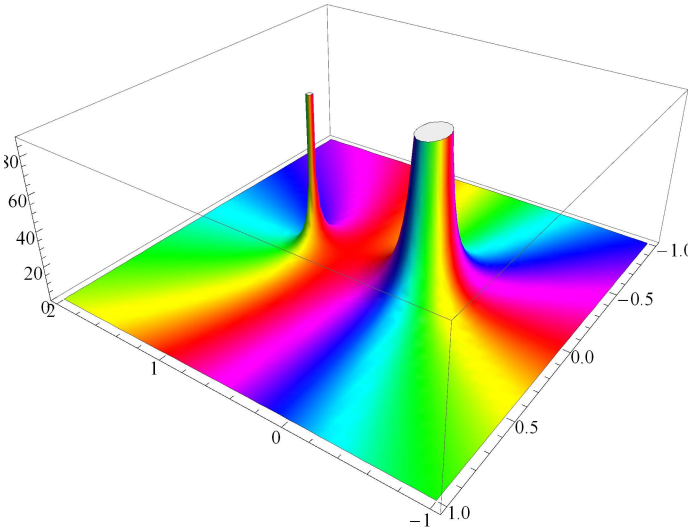
In[10]:=
```
viewAbsSurface[(1 / (# (# - 1))) &, {x, -1, 2}, {y, -1, 1},
 PlotRange -> {0, 90}, PlotPoints -> 40,
 ViewPoint → {-1, 1.4, 1}]
```

Out[10]=



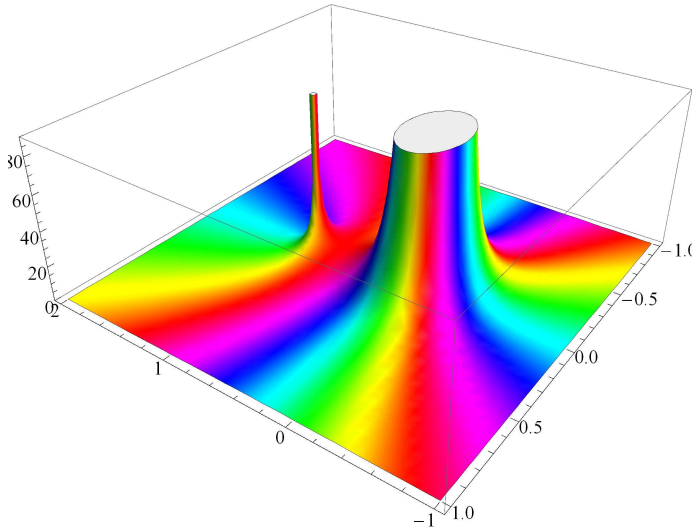
In[11]:=
```
viewAbsSurface[(1 / (#^2 (# - 1))) &, {x, -1, 2}, {y, -1, 1},
 PlotRange -> {0, 90}, PlotPoints -> 40,
 ViewPoint → {-1, 1.4, 1}]
```

Out[11]=



In[12]:=
```
viewAbsSurface[(1 / (#^3 (# - 1))) &, {x, -1, 2}, {y, -1, 1},
 PlotRange -> {0, 90}, PlotPoints -> 40,
 ViewPoint → {-1, 1.4, 1}]
```

Out[12]=



In[13]:=
```
viewAbsSurface[(Exp[-1 / #^2]) &, {x, -1.2, 1.2}, {y, -1, 1},
 PlotRange -> {0, 90}, PlotPoints → 45,
    ViewPoint -> {2, 0, 0.8}]
```

Out[13]=