```
Mobius[z_] := I (1 + z)/(1 - z);
ReIm := {Re[#], Im[#]} &

ParametricPlot[ReIm[Mobius[r Exp[I θ]]], {r, 0, 1}, {θ, 0, 2 π}]

ComPolar[{z_, f_}] := {Re[z], Im[z], f}

ParametricPlot3D[Table[ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}]

ParametricPlot3D[
 Table[ComPolar[{Mobius[r Exp[I θ]], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}]

SterProj[{{x_, y_}, {z_, w_}}] := {x/(1 - w), y/(1 - w), z/(1 - w)}
vertRot = RotationTransform[π/2, {1, 0, 0}]
radRot = RotationTransform[π/2, {0, 0, 1}]
Manipulate[
 Show[ParametricPlot3D[
   Table[ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}],
  ParametricPlot3D[vertRot@radRot@SterProj[ReIm /@ {r Exp[I θ], Exp[I ϕ]}]},
   {r, 0, 1}, {θ, 0, 2 π}]], {ϕ, 0, 2 π}]

ParametricPlot3D[
 Table[ComPolar[{Mobius[r Exp[I θ]], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}]

SterProj[{{x_, y_}, {z_, w_}}] := {x/(1 - w), y/(1 - w), z/(1 - w)}
vertRot = RotationTransform[π/2, {1, 0, 0}];
radRot = RotationTransform[π/2, {0, 0, 1}];

Show[ParametricPlot3D[
   Table[ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}],
 ParametricPlot3D[Table[radRot@vertRot@ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}],
  {r, 0, 1}, {θ, 0, 2 π}]]


Torus[{a_, b_, ϕ_}] := {(1 + a) Sin[ϕ], (1 + a) Cos[ϕ], b}
Torus[ComPolar[{r Exp[I θ], 2 π n / 4}]]

Show[ParametricPlot3D[
   Table[Torus@ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}],
 ParametricPlot3D[Table[radRot@vertRot@ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}],
  {r, 0, 1}, {θ, 0, 2 π}]]

Rot[Ω_] := RotationTransform[Ω, {0, 0, 1}]

f = Table[Torus@Rot[-π/2]@ComPolar[{Mobius@(r Exp[I θ]), 2 π n / 4}] + {0, 0, π},
    {n, 0, 4}] // ComplexExpand;

ParametricPlot3D[f, {r, 0, 1}, {θ, 0, 2 π}, PlotRange → {{-10, 10}, {-10, 10}, {-10, 10}}]
```

```
Show[
 ParametricPlot3D[f, {r, 0, 1}, {θ, 0, 2 π}],
 ParametricPlot3D[Table[ComPolar[{r Exp[I θ], 2 π n / 4}], {n, 0, 4}],
  {r, 0, 1}, {θ, 0, 2 π}, PlotRange → {{-3, 3}, {-3, 3}, {-3, 3}}]
]
```

```
ParametricPlot3D[
 Table[ComPolar[{r Exp[I θ], r Sin[θ] + 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}]
```

```
f = Table[Torus@Rot[-π / 2]@ComPolar[{Mobius@(r Exp[I θ]), r Sin[θ] + 2 π n / 4}] + {0, 0, π},
    {n, 0, 4}] // ComplexExpand;
```

```
f = Table[Torus@Rot[0]@ComPolar2[{Unwrap@(r Exp[I θ]), r Sin[θ] + 2 π n / 4}] + {0, 0, π},
    {n, 0, 4}] // ComplexExpand;
ParametricPlot3D[f, {r, 0, 1}, {θ, 0, 2 π}]
```

```
ParametricPlot3D[
 Table[ComPolar[{r Exp[I θ], r Sin[θ] + 2 π n / 4}], {n, 0, 4}], {r, 0, 1}, {θ, 0, 2 π}]
```

```
ParametricPlot[Unwrap[r Exp[I θ]], {r, 0, 1}, {θ, 0, 2 π}, PlotPoints → 100]
```

```
Unwrap[z_] := {Abs[z] - 3, τArg[z]}
ComPolar2[{{a_, b_}, f_}] := {a, b, f};
```

```
τArg[r Exp[I θ]]
```

```
Arg[0.1 Exp[I * -3]]
```