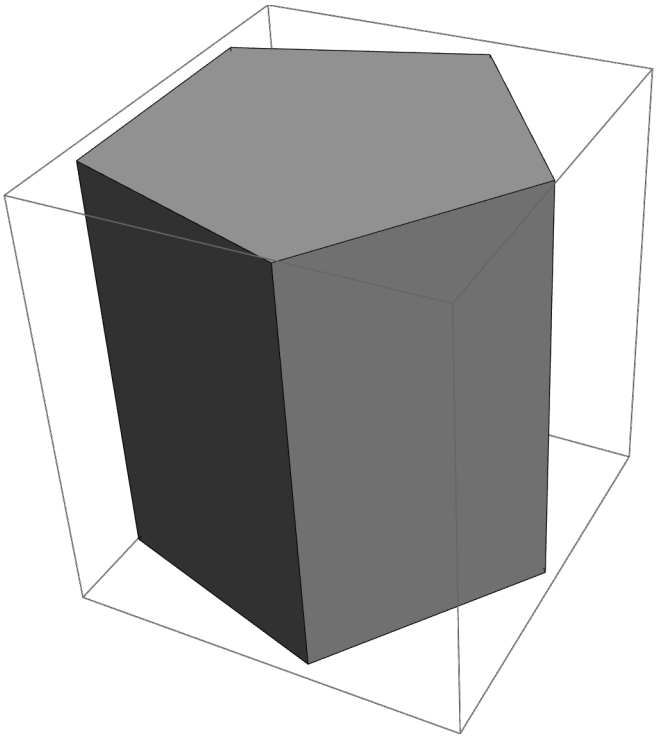
齿轮

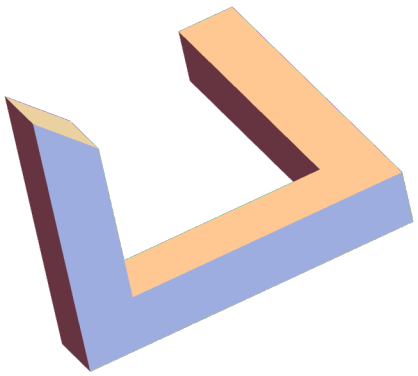
In[ ]:=
```
extrude[p_Polygon, z_] :=
  Module[{pts = p[[1]]}, Polygon /@ {Append[#, 0] & /@ pts, Append[#, z] & /@ pts,
    Join[Append[#, 0] & /@ #, Append[#, z] & /@ Reverse[#]] & /@
     Partition[List @@ pts, 2, 1, 1]}]
pentagon = Polygon[Array[{Cos[2 π # / 5], Sin[2 π # / 5]} &, 5]];
Graphics3D[{Gray, extrude[pentagon, 2]}, Lighting → "Neutral"]
```

Out[ ]=



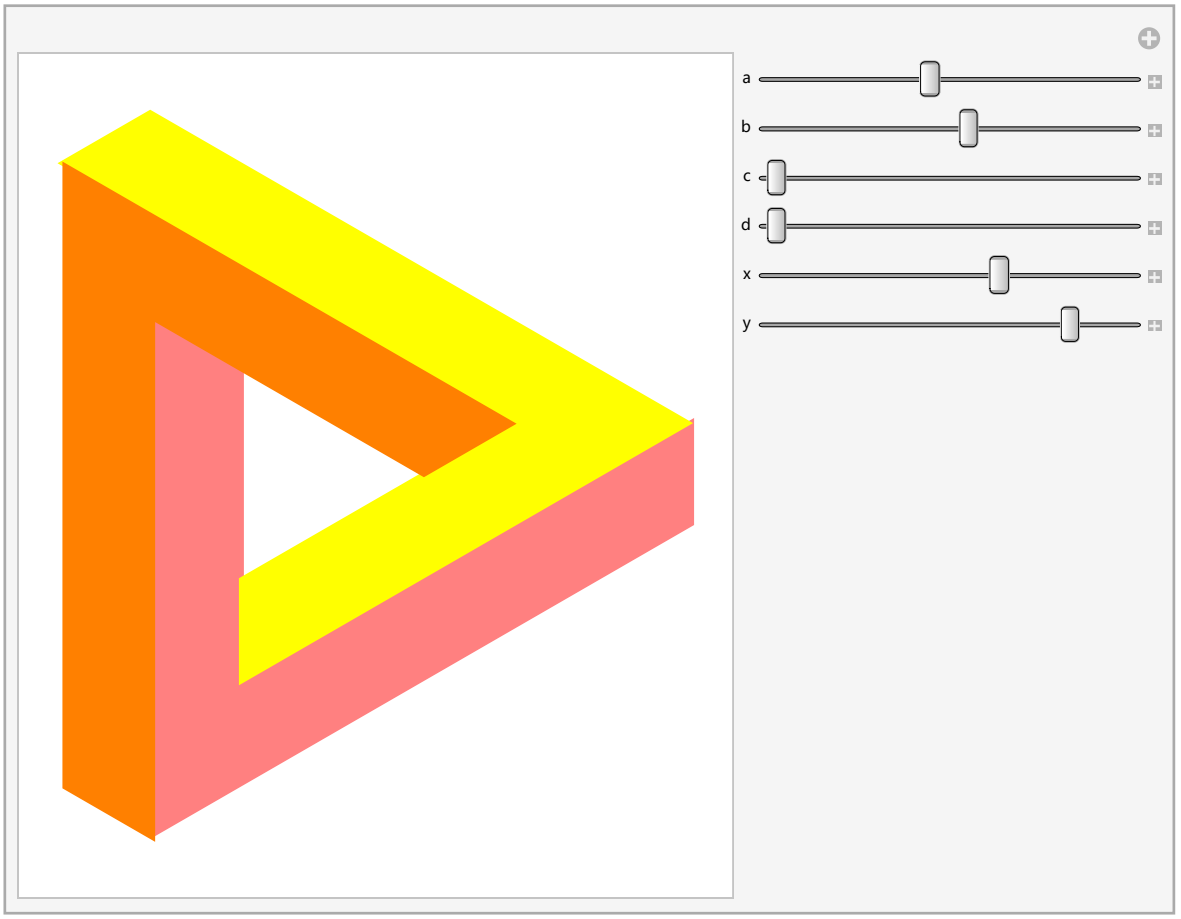
In[ ]:=
```
Graphics3D[{EdgeForm[], Polygon[{{0, 0, 4}, {0, 1, 4}, {0, 0, 5}}],
  Polygon[{{0, 0, 4}, {1, 0, 4}, {1, 0, 5}, {0, 0, 5}}],
  Polygon[{{0, 0, 5}, {1, 0, 5}, {1, 1, 4}, {0, 1, 4}}],
  Polygon[{{1, 0, 4}, {1, 1, 4}, {1, 0, 5}}], Cuboid[{0, 0, 1}, {1, 1, 4}],
  Cuboid[{0, 0, 0}, {1, 6, 1}], Cuboid[{0, 5, 0}, {-5, 6, 1}]},
 Boxed → False, Axes → None, AspectRatio → Automatic,
 PlotRange → {{-6, 6}, {0, 6}, {-1, 5}}, ViewPoint → {50, -50.3, 50}]
```
三维图形 边的格式 多边形 多边形 多边形 多边形 长方体 长方体 长方体 边界框 假 坐标轴 无 宽高比 自动 绘制范围 视点

Out[ ]=



In[ ]:=
```
Manipulate[
  r = {x, y};
  p =
   Polygon[{{0, 0}, {0, a}, {Sqrt[3]/2 c, a - c/2}, {Sqrt[3]/2 c, c/2 + d}, {Sqrt[3]/2 b, b/2 + d}, {Sqrt[3]/2 b, b/2}}];
  Graphics[{Pink, p, Yellow, Rotate[p, 2 π/3, r], Orange, Rotate[p, 4 π/3, r]}], {{a, 5}, 1,
  10}, {{b, 6}, 1, 10}, {{c, 1}, 1, 10}, {{d, 1}, 1, 10}, {{x, 0}, -5, 5}, {{y, 0}, -5, 5}]
```
Manipulate 交互式操作 | Polygon 多边形 | Graphics 图形 | Pink 粉色 | Yellow 黄色 | Rotate 旋转 | Orange 橙色 | Rotate 旋转

Out[ ]=



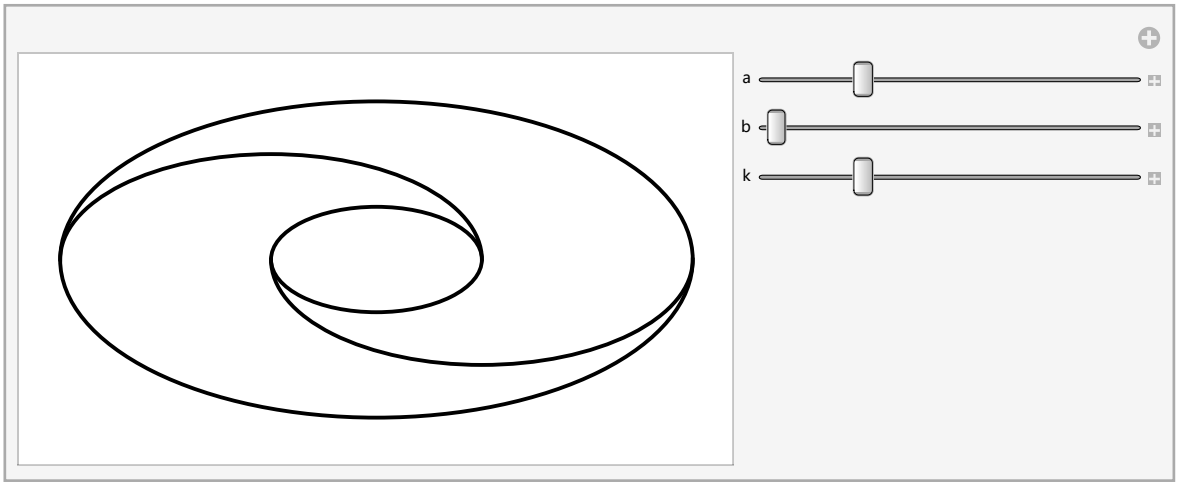

```
SolveValues[(1 + θ) Cos[θ] == -1, θ]
```
SolveValues 由解确定的值 | Cos 余弦

SolveValues: This system cannot be solved with the methods available to SolveValues.

Out[ ]=
```
SolveValues[{(1 + θ) Cos[θ] == -1}, θ]
```

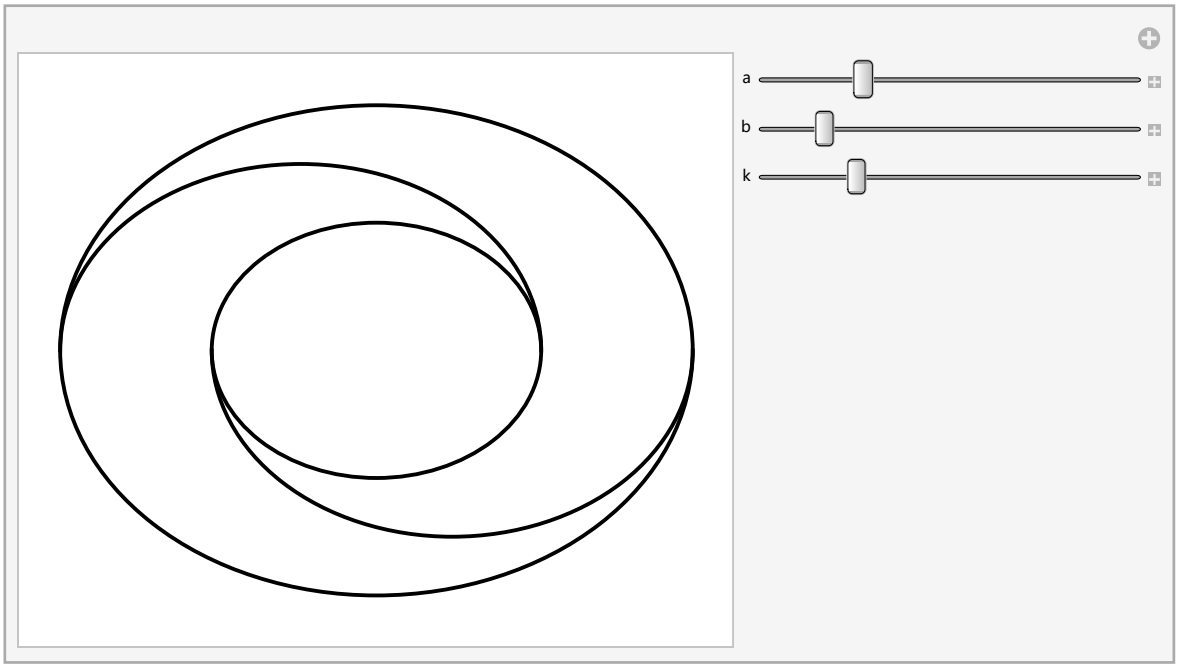
In[ ]:=
```
DynamicModule[{c1, c2, c3},
 Manipulate[c1 = Circle[{0, 0}, {a, b}];
  c2 = Circle[{k a - a, 0}, {a, b} k, {π, 2 π}];
  c3 = Circle[{0, 0}, {a, b} (2 k - 1)];
  Graphics[{Thick, c1, c2, Rotate[c2, π, {0, 0}], c3}],
  {{a, 2}, 1, 5}, {{b, 1}, 1, 5}, {{k, 2}, 1, 5}]
]
```

Out[ ]=



In[ ]:=
```
DynamicModule[{c1, c2, c3},
 Manipulate[c1 = Circle[{0, 0}, {a, b}];
  c2 = Circle[{(k a - a)/2, 0}, {a, b} (k + 1)/2, {π, 2 π}];
  c3 = Circle[{0, 0}, {a, b} k];
  Graphics[{Thick, c1, c2, Rotate[c2, π, {0, 0}], c3}],
  {{a, 2}, 1, 5}, {{b, 1}, 1, 5}, {{k, 2}, 1, 5}]
]
```

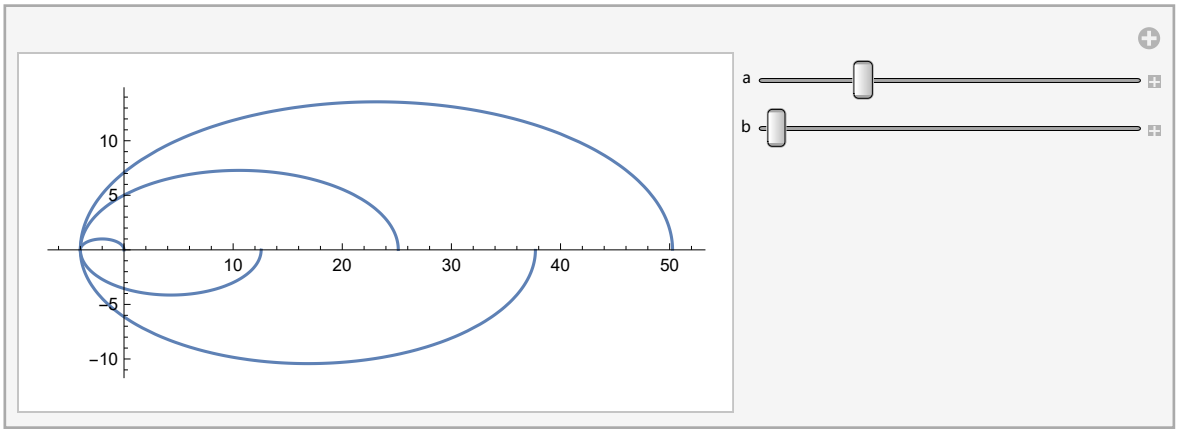
Out[ ]=



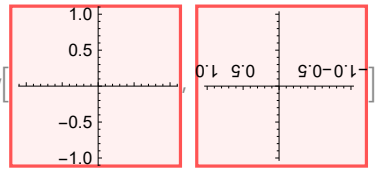
利用复数绘制

In[ ]:=
```
Manipulate[
```
交互式操作
```
 ParametricPlot[{1, θ} (Floor[θ, π] a - a) + {a Cos[θ], b Sin[θ]} (Floor[θ, π] + 1),
```
绘制参数图　向下取整　余弦　正弦　向下取整
```
  {θ, 0, 5 π}], {{a, 2}, 1, 5}, {{b, 1}, 1, 5}]
```

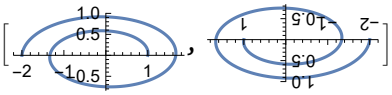
Out[ ]=




```
Show[pp, GeometricTransformation[pp, π]]
```
显示　几何变换

Show: 无法合并 Show[] 中的图形对象.

Out[ ]=

Show[]

In[ ]:=
```
? Torus
```

Out[ ]=

Symbol

Torus[{x, y, z}, {r_{inner}, r_{outer}}] 表示以 {x, y, z} 为中心的圆环面，其内半径为 r_{inner}，外半径为 r_{outer}.

```
KnotData["Trefoil"]
```
纽结数据