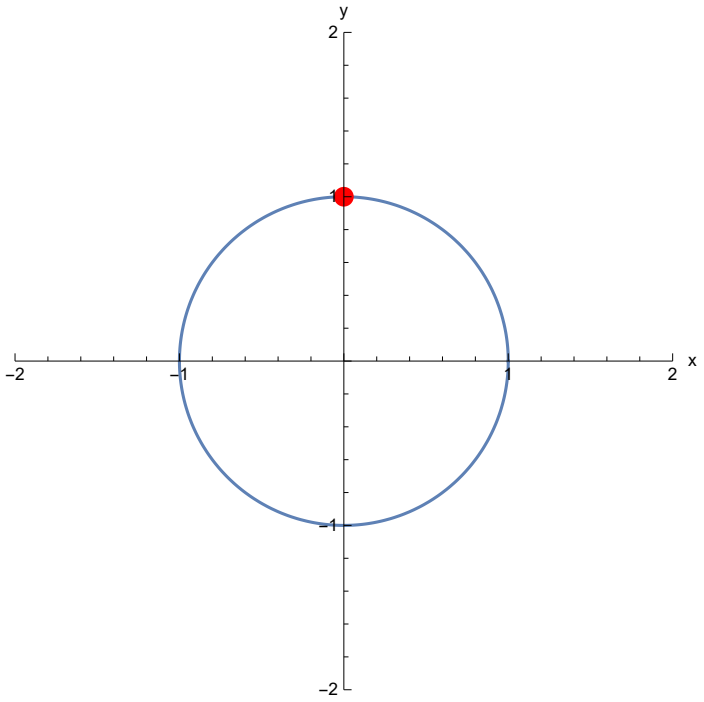
In[ ]:=
```
circle = ParametricPlot[{Cos[t], Sin[t]}, {t, 0, 2 Pi},
  PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
top = Graphics[{Red, PointSize[0.03], Point[{0, 1}]}]
Show[circle, top]
```

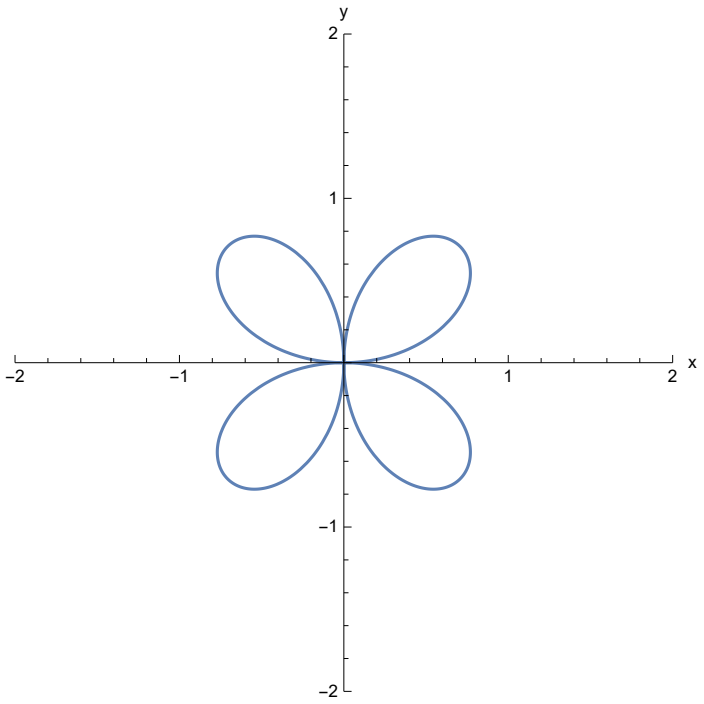
Out[ ]=



In[ ]:=
```
r = Sin[2 t]
ParametricPlot[{ r * Cos[t], r * Sin[t]}, {t, 0, 2 Pi},
 PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[ ]=
```
Sin[2 t]
```

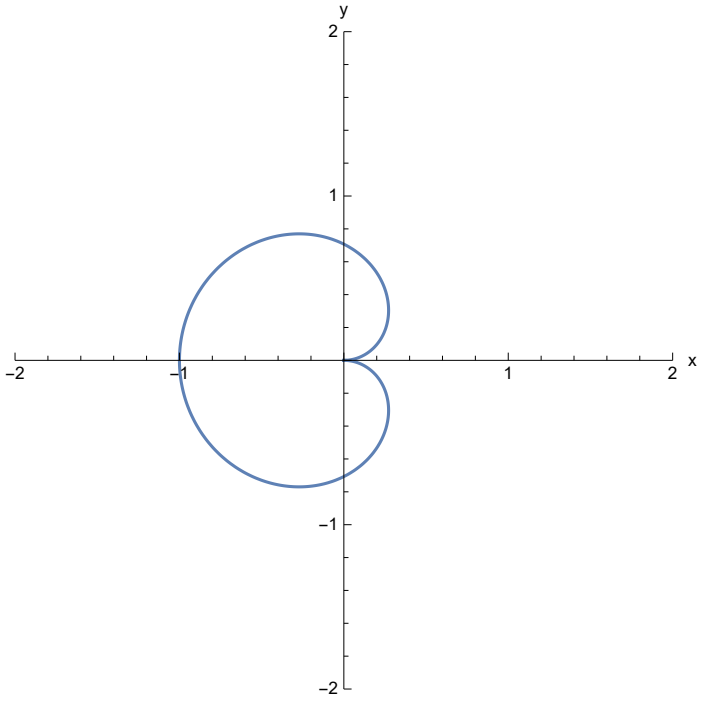
Out[ ]=



In[ ]:=
```
r = Sin[0.5 t]
ParametricPlot[{ r * Cos[t], r * Sin[t]}, {t, 0, 2 Pi},
 PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[ ]=
```
Sin[0.5 t]
```

Out[ ]=

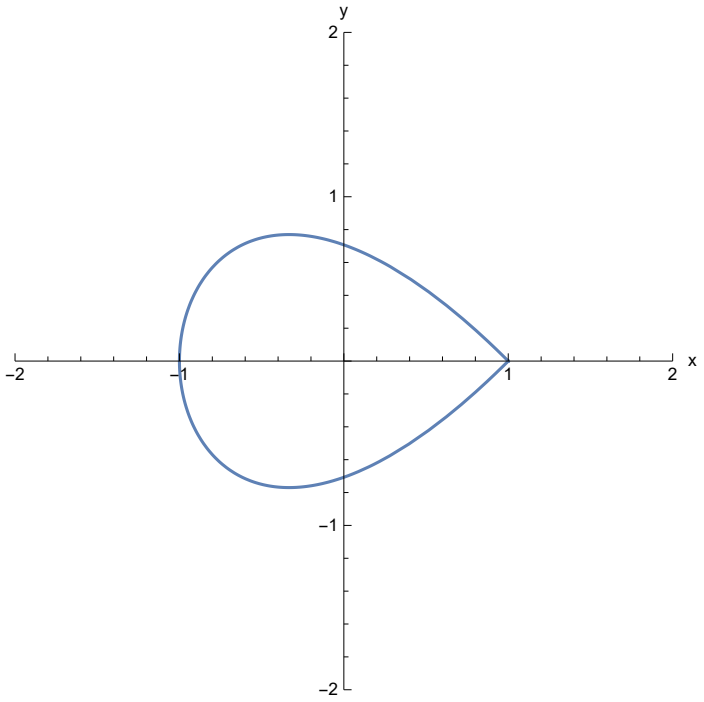


In[•]:=
```
fatness = 1
r = fatness * Sin[0.5 t]
ParametricPlot[{Cos[t], r * Sin[t]}, {t, 0, 2 Pi},
 PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[•]= 1

Out[•]= Sin[0.5 t]

Out[•]=

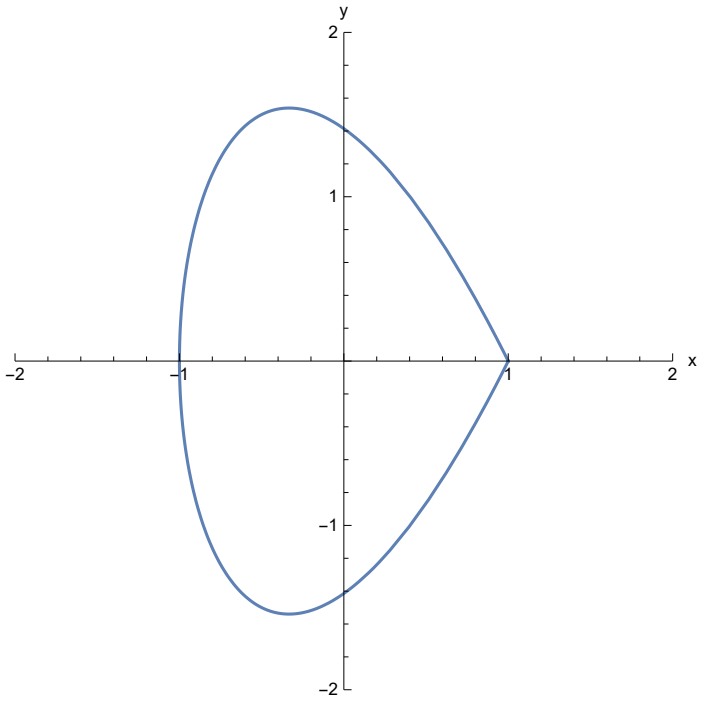


In[ ]:=
```
fatness = 2
r = fatness * Sin[0.5 t]
ParametricPlot[{ Cos[t], r * Sin[t]}, {t, 0, 2 Pi},
 PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[ ]= 2

Out[ ]= 2 Sin[0.5 t]

Out[ ]=



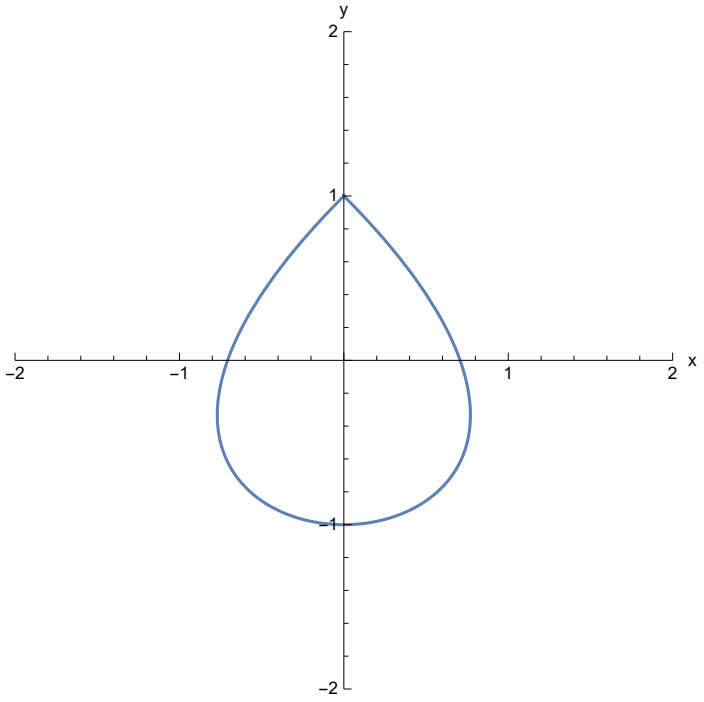
In[•]:=
```
circleRadius = 1
fatness = 1
r = fatness * Sin[(circleRadius / 2) * t]
ParametricPlot[{circleRadius * r * Sin[t], circleRadius * Cos[t]},
 {t, 0, 2 Pi}, PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[•]= 1

Out[•]= 1

Out[•]= $\text{Sin}\left[\frac{t}{2}\right]$

Out[•]=



In[ ]:=
```
fatness = 0.5
radius = 1
x0 = 0
y0 = radius
(* radius of x axis Abs[Sqrt[(x0 - Cos[t])^2 + (y0 - Sin[t])^2]]:
 the distance from current point to top point of a droplet (x0, y0) *)
ParametricPlot[{ (Sqrt[(x0 - radius * Cos[t])^2 + (y0 - radius * Sin[t])^2]) *
   fatness * radius * Cos[t], radius * Sin[t]}, {t, 0, 2 Pi},
 PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

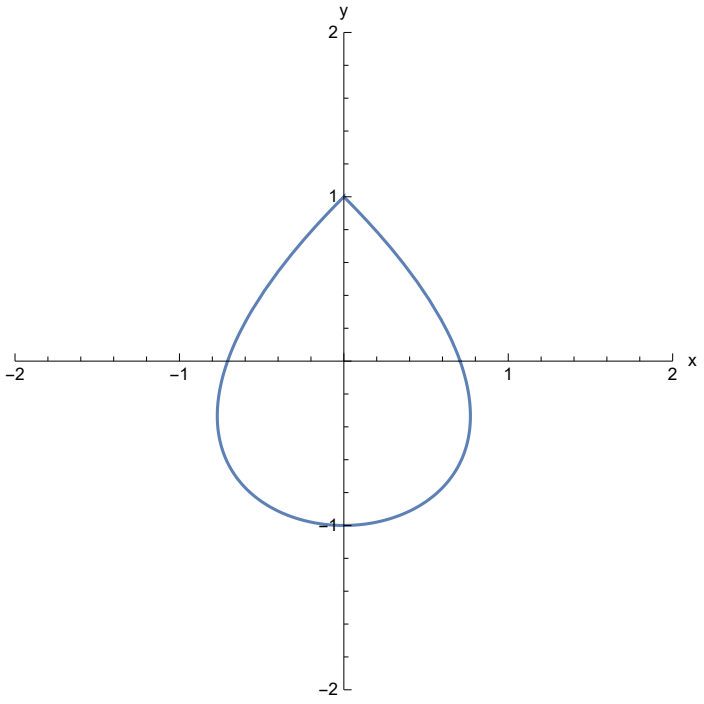
Out[ ]= 0.5

Out[ ]= 1

Out[ ]= 0

Out[ ]= 1

Out[ ]=



In[ ]:=
```
ParametricPlot[
 { (Sqrt[(x0 - radius * Cos[t])^2 + (y0 - radius * Sin[t])^2]) * fatness * radius * Cos[t],
  (Sqrt[(x0 - radius * Cos[t])^2 + (y0 - radius * Sin[t])^2]) * fatness * radius * Sin[t]},
 {t, 0, 2 Pi}, PlotRange → {{-2, 2}, {-2, 2}}, AxesLabel → {"x", "y"}]
```

Out[ ]=