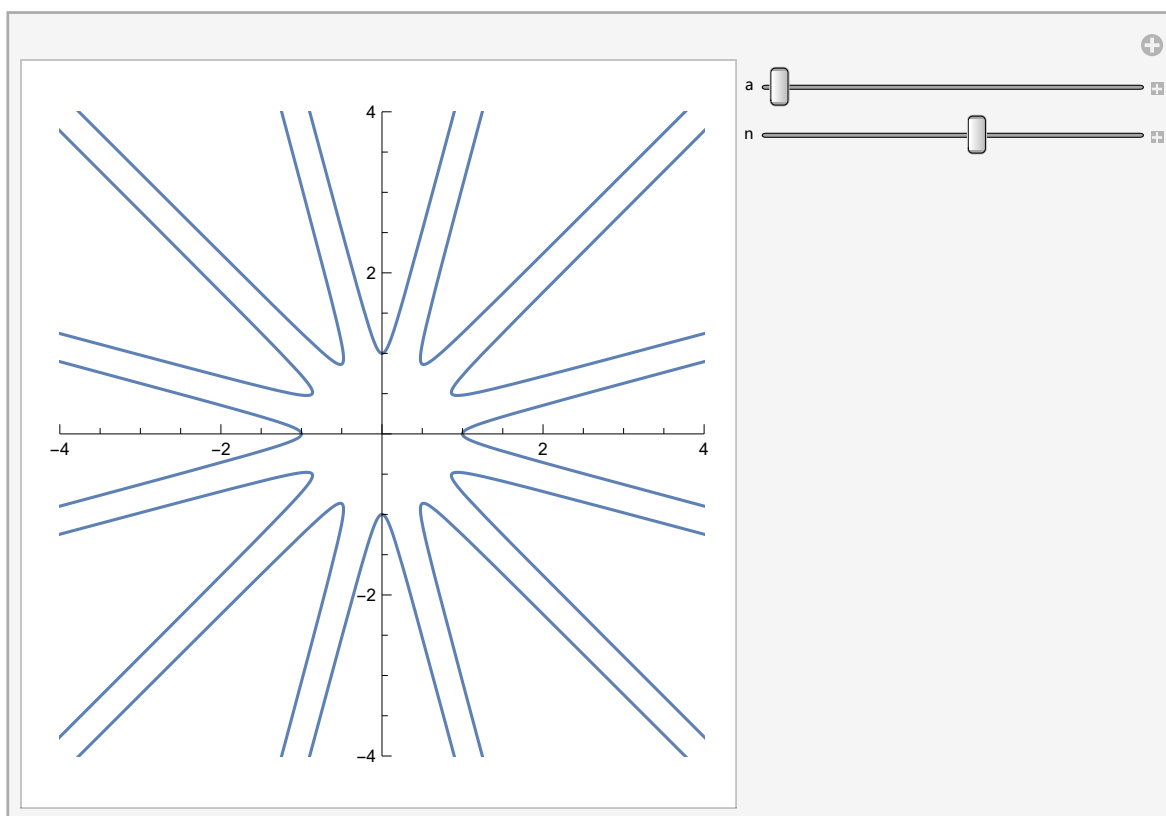# Epispiral

参考

https://mathworld.wolfram.com/Epispiral.html

The epispiral is a plane curve with polar equation

r = a sec(n θ) .

There are n sections if n is odd and 2 n if n is even .

In[ ]:= **Manipulate[PolarPlot[a Sec[n θ], {θ, 0, 2 π},**
交互式操作   极坐标图   正割

Exclusions → "Singularities", PlotRange → 4], {a, 1, 3}, {n, 2, 9, 1}]
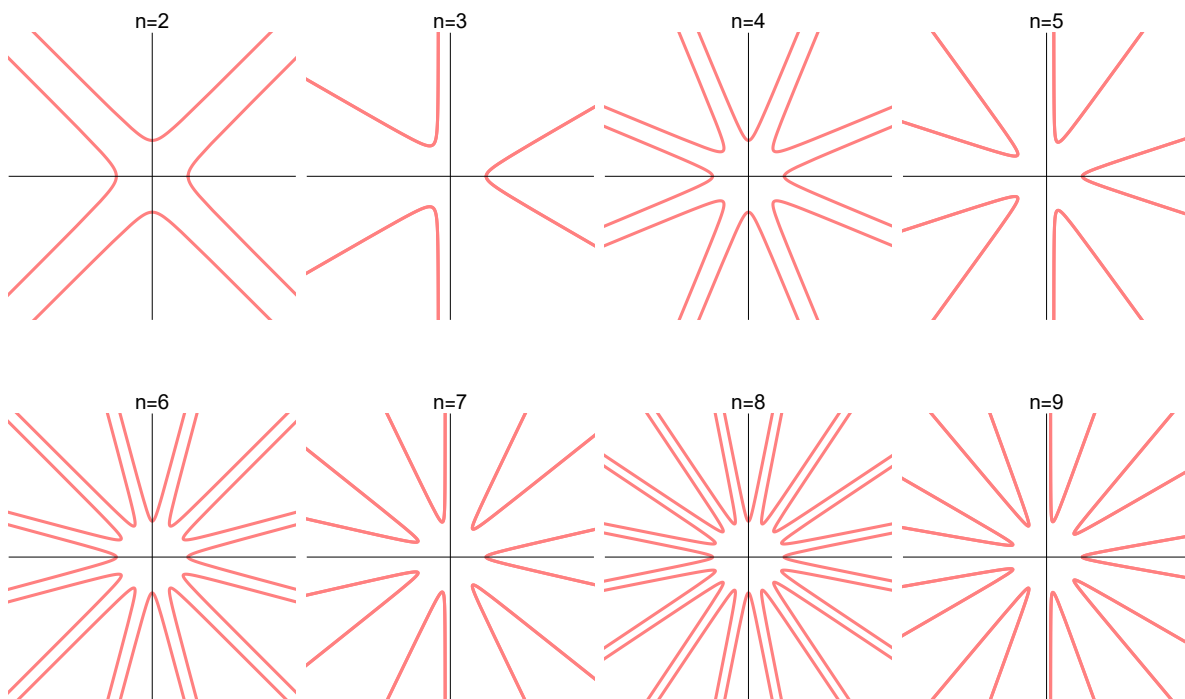排除   绘制范围

Out[ ]=

```
In[ ]:=  Partition[Table[PolarPlot[Sec[n θ], {θ, 0, 2 π},
```
划分　　　表格　极坐标图　正割

```
        Exclusions → "Singularities", PlotLabel → StringForm["n=``", n],
```
排除　　　　　　　　　　绘图标签　　　字符串形式

```
        PlotRange → 4, PlotStyle → Pink, Ticks → None], {n, 2, 9}], 4] // Grid
```
绘制范围　　　绘图样式　粉色　刻度　无　　　　　　　　　　格子

Out[ ]=

A slightly more symmetric version considers instead

$r = a \, | \sec(n\,\theta) |$

In[ ]:=
```
Partition[Table[PolarPlot[Abs@Sec[n θ], {θ, 0, 2 π},
    Exclusions → "Singularities", PlotLabel → StringForm["n=``", n],
    PlotRange → 4, PlotStyle → Pink, Ticks → None], {n, 2, 9}], 4] // Grid
```

Out[ ]=