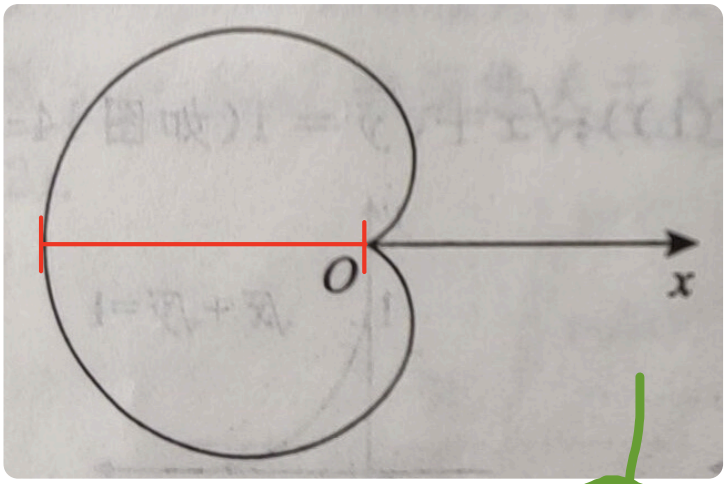
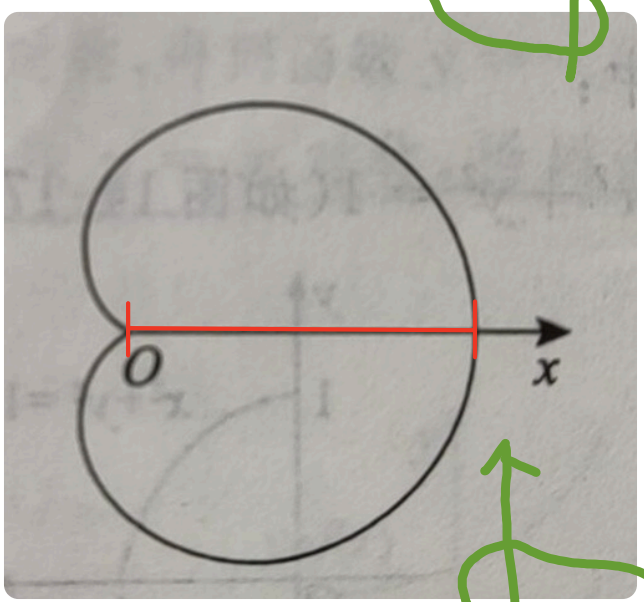


心形线（猴屁股朝右）

$r = a(1-\cos\theta) \quad (a>0)$

图中红线段长为2a

$r=a(1-\cos\theta)$

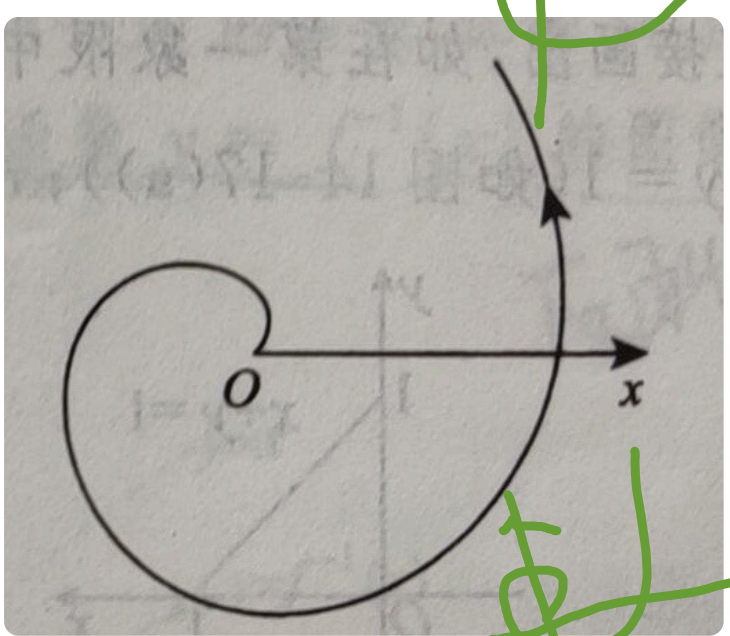


心形线（猴屁股朝左）

$r = a(1+\cos\theta) \quad (a>0)$

图中红线段长为2a

$r=a(1+\cos\theta)$



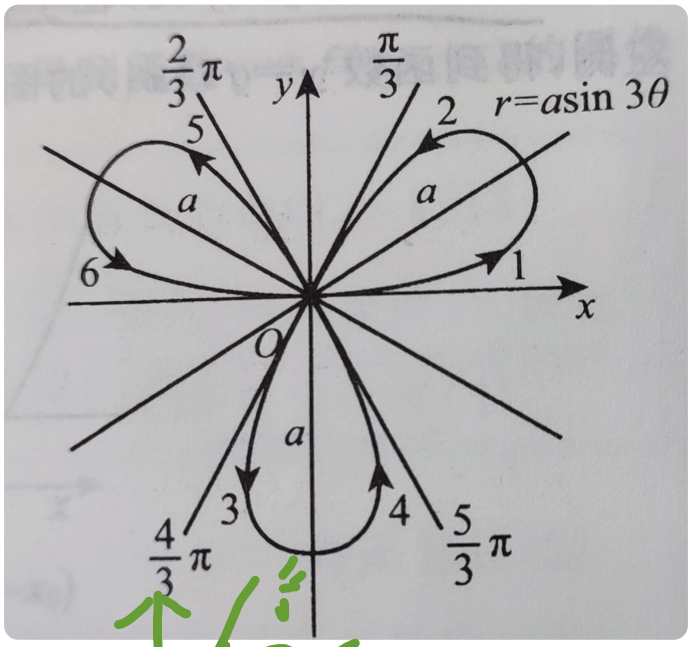
阿基米德螺线

$r = a\theta \quad (a>0, \theta>0)$

当θ由0增大时，

r亦逐渐增大

$r=a\theta$



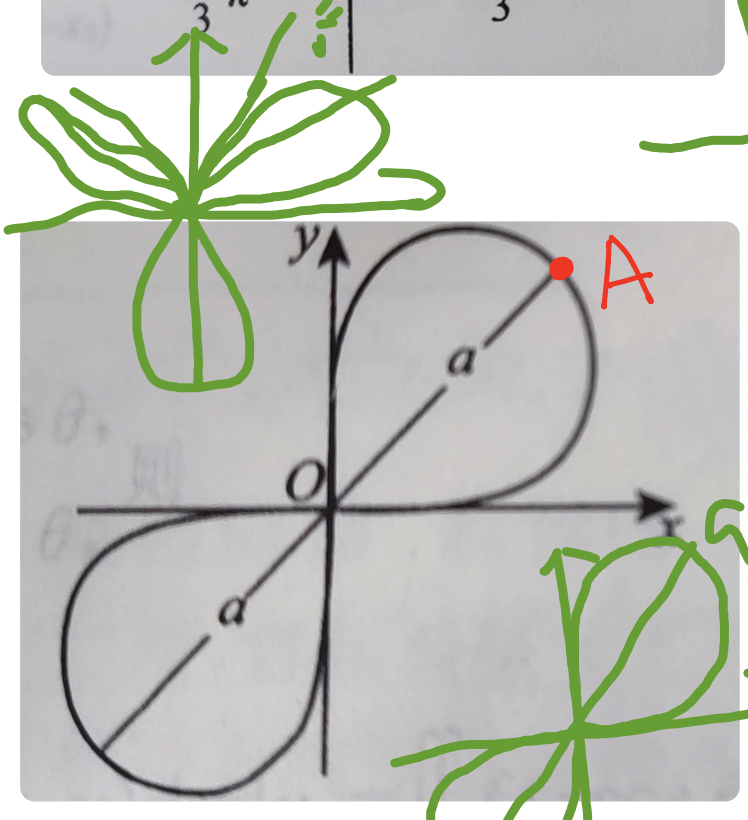
$r=a\sin 3\theta$

玫瑰线

$r=a\sin 3\theta$

$r=a\sin 3\theta \quad (a>0)$

表达式右端是以 $\frac{2}{3}\pi$ 为周期的周期函数

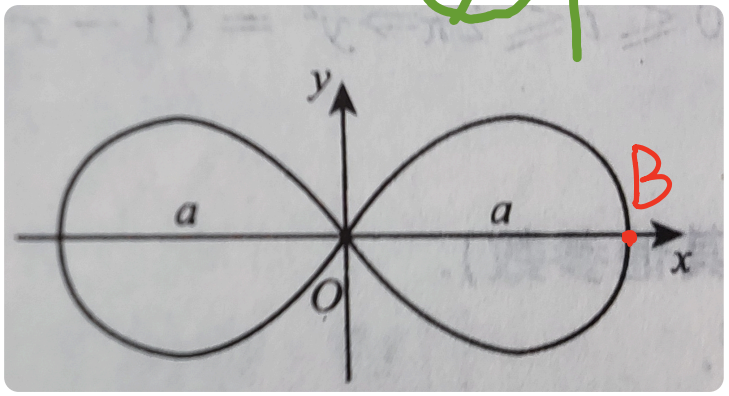


伯努利双纽线

$r^2=a^2\sin 2\theta$

图中A点坐标为 $(a,\frac{\pi}{4})$

$r^2=a^2\sin 2\theta$



伯努利双纽线

$r^2=a^2\cos 2\theta$

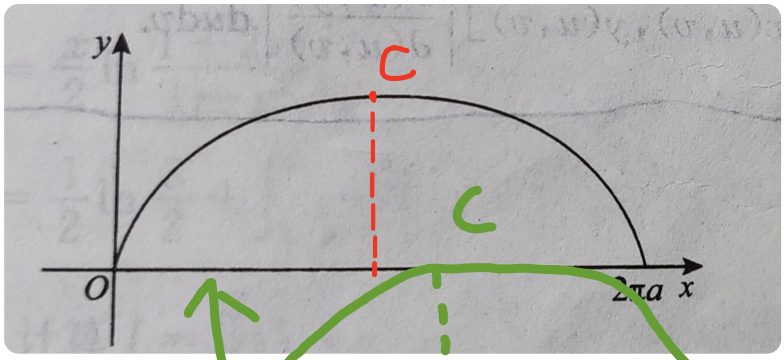
图中B点坐标为 $(a,0)$

注意：见到平方和 "x^2+y^2" 可考虑化为极坐标方程.

如 $(x^2+y^2)^2=a^2(x^2-y^2)$ 化为 $r^2=a^2\cos 2\theta$

常考

摆线



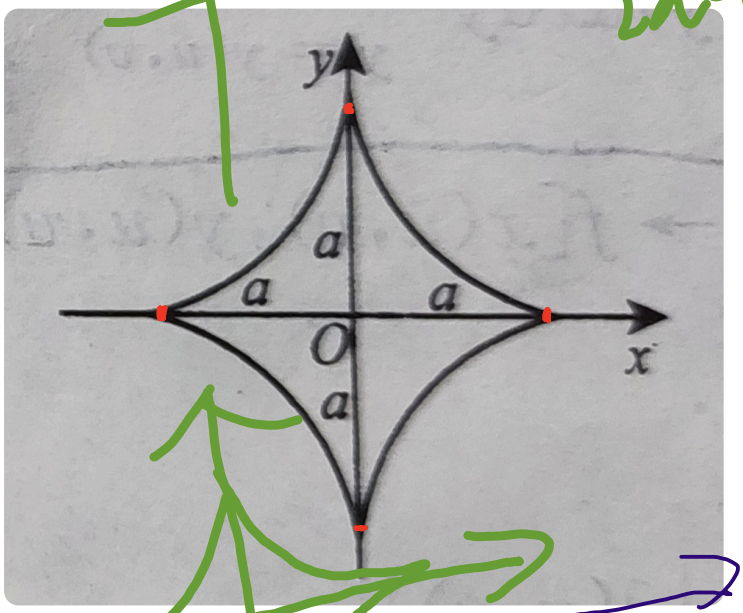
$$\begin{cases} x = a(t-\sin t) \\ y = a(1-\cos t) \end{cases} \quad (0 \le t \le 2\pi)$$

图中C点坐标为 $(\pi a, 2a)$

$x = a(t-\sin t)$

$y = a(1-\cos t)$

星形线



$$\begin{cases} x = a\cos^3 t \\ y = a\sin^3 t \end{cases}$$

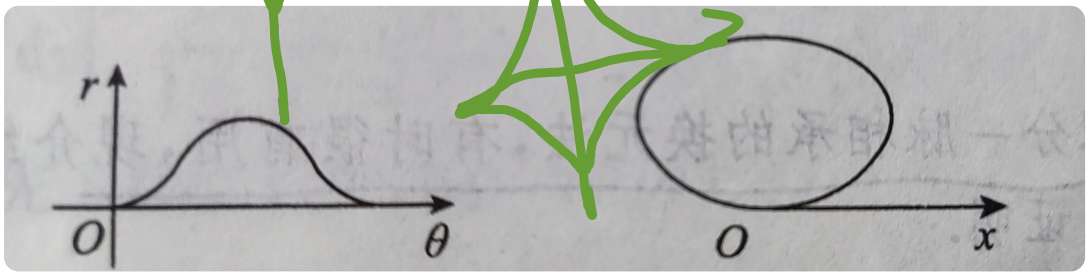
或

$$x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$$

$x = a(t-\sin t)$

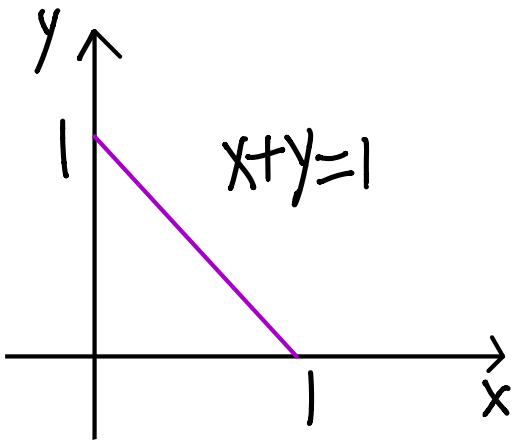
$y = a(1-\cos t)$

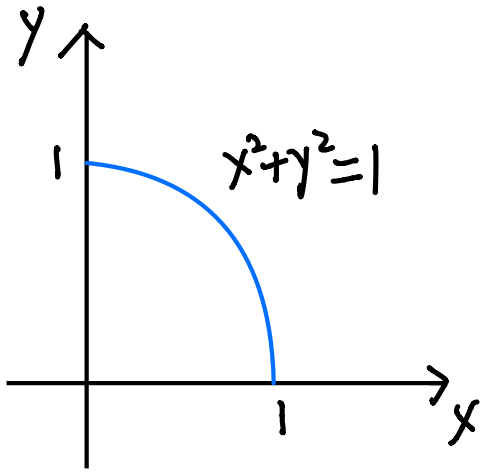
其他曲线

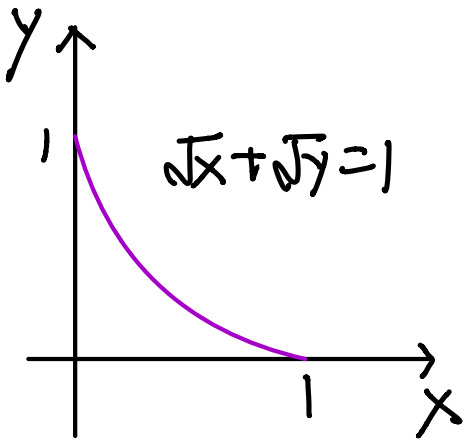


极直互化

$$r = \sin^2\theta = \frac{1-\cos 2\theta}{2} \quad (0 \le \theta \le \pi)$$


y
1
x+y=1
1
x


y
1
x²+y²=1
1
x


y
1
√x+√y=1
1
x