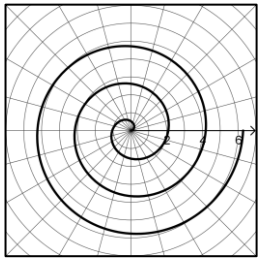
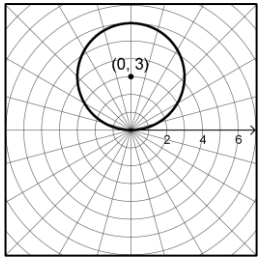
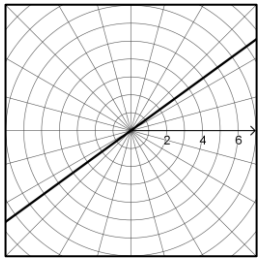
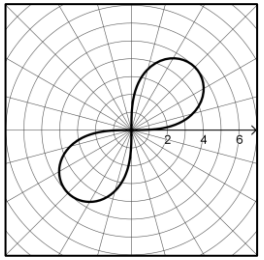
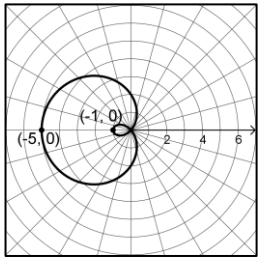
Type of Graph	Equations	Properties	Example
Spiral	$r=a\theta$	Begins at the origin spiraling outward in a counter-clockwise direction, crossing the polar axis at $(2\pi ak,0)$ for $k=0,1,2,3,\ldots$	$r=\frac{1}{3}\theta$ with $0\le\theta\le 6\pi$ 
Circles	$r=a$ $r=2a\sin\theta$ $r=2a\cos\theta$	If $r=a$, then a circle with radius $\lvert a\rvert$ centered at $(0,0)$ If $\sin\theta$, then a circle with radius $\lvert a\rvert$ centered at $(0,a)$ If $\cos\theta$, then a circle with radius $\lvert a\rvert$ centered at $(a,0)$	$r=6\sin\theta$ 
Lines	$\theta=\theta_0$	A line passing through the origin with slope $m=\tan\theta_0$	$\theta=\frac{\pi}{5}$ 

Type of Graph	Equations	Properties	Example
Lemniscates	$r^2 = a^2 \sin\theta$ $r^2 = a^2 \cos\theta$	If $\sin\theta$, then two loops along the $y = x$ line each having a radius $\lvert a \rvert$ If $\cos\theta$, then two loops along the $y = 0$ line each having a radius $\lvert a \rvert$	$r^2 = 25\sin(2\theta)$ 
Limaçons Inner Loop (a < b) Cardioid (a = b) Dimple (a > b)	$r = a \pm b\sin\theta$ $r = a \pm b\cos\theta$	If $+b\sin\theta$ then extends upward, if $-b\sin\theta$ then extends downward; has y-intercepts at $(0, b \pm a)$; has x-intercepts at $(\pm a, 0)$; inner loop and cardioid also cross through origin If $+b\cos\theta$ then extends right, if $-b\cos\theta$ then extends left; has x-intercepts at $(b \pm a, 0)$; has y-intercepts at $(0, \pm a)$; inner loop and cardioid also cross through origin	$r = 2 - 3\cos\theta$ 
Roses	$r = a\sin(n\theta)$ $r = a\cos(n\theta)$	If $\sin(n\theta)$, then no petals on either axis if n is even or 1 petal on y-axis if n is odd (alternates $+y$ or $-y$ for incrementally odd values) If $\cos(n\theta)$, then first petal on positive x-axis # of petals: if n is odd then n petals, if n is even then $2n$ petals	$r = 6\cos(5\theta)$