Trig 9.2

$\theta = 45^\circ$

$r = 3$

Graph polar equations
Solve systems of polar equations

- rose
- lemniscate
- limaçon
- cardioid

degrees or radians

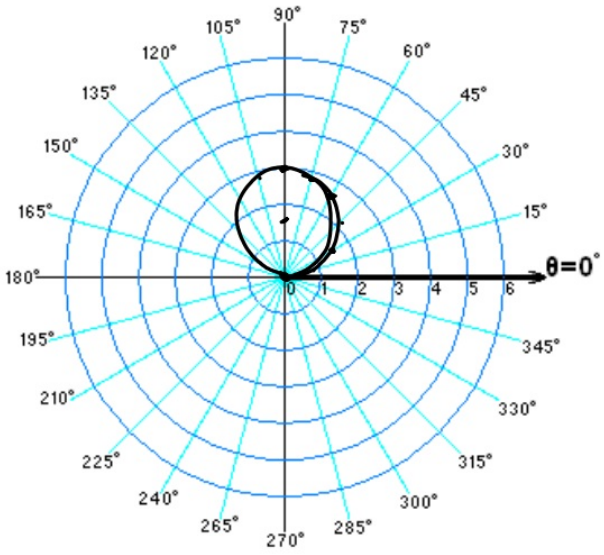
spiral of Archimedes radians

activity: polar graphs and gallery walk

Graph $r = 3\sin\theta$

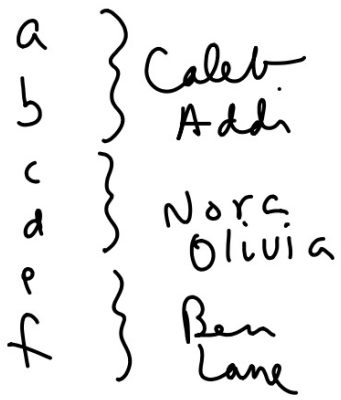
Angle	$3\sin(\ )$	r
0	$3\sin 0$	0
15	$3\sin 15$	0.8
30	$3\sin 30$	1.5
45	$3\sin 45$	2.1
60		2.6
75		2.9
90		3
105		2.9
120		
135		
150		

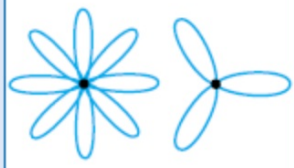
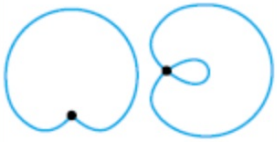
165		
180		
195		
210		
225		
240		
255		
270		
285		
300		
315		
330		
345		
360		



Graphing activity:

Gallery Walk



Classical Curves					
Curve	rose	lemniscate *(pronounced lehm NIHS kuht)*	limaçon *(pronounced lee muh SOHN)*	cardioid *(pronounced KARD ee oyd)*	spiral of Archimedes *(pronounced ar kih MEED eez)*
Polar Equation	$r = a \cos n\theta$ $r = a \sin n\theta$ *n is a positive integer.*	$r^2 = a^2 \cos 2\theta$ $r^2 = a^2 \sin 2\theta$	$r = a + b \cos \theta$ $r = a + b \sin \theta$	$r = a + a \cos \theta$ $r = a + a \sin \theta$	$r = a\theta$ (θ in radians)
General Graph					

4 Graph the system of polar equations. Solve the system using algebra and trigonometry and compare the solutions to those on your graph.

$r = 3 - 3 \sin \theta$

$r = 4 - \sin \theta$