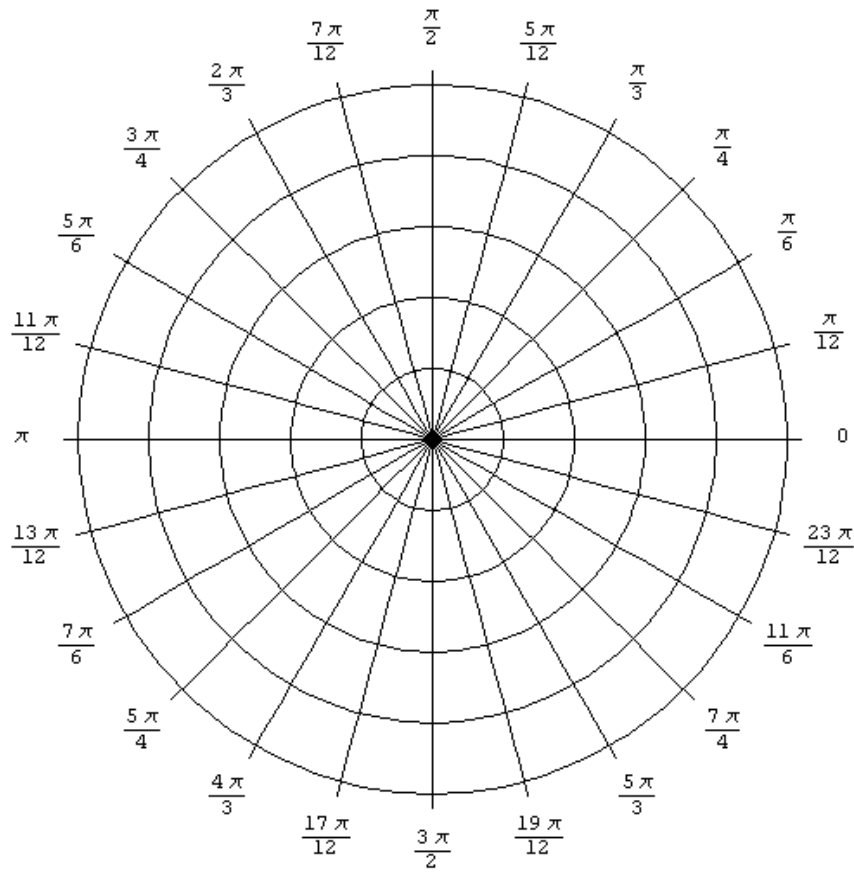


Sketch the polar graph $r = 1 - 2 \sin \theta$ by first completing the table of r -values for the given list of θ -values.

Give the exact value of r in each case, as well as a decimal approximation to 1 decimal place. Use $\sqrt{2} \approx 1.4$ and $\sqrt{3} \approx 1.8$.

Then plot all 17 points, and connect with a **smooth curve** in increasing order of θ .

$\theta =$	$r = 1 - 2 \sin \theta$ (exact value, may involve radicals)	$r = 1 - 2 \sin \theta$ (approximation to 1 decimal place)
0		
$\frac{\pi}{6}$		
$\frac{\pi}{4}$		
$\frac{\pi}{3}$		
$\frac{\pi}{2}$		
$\frac{2\pi}{3}$		
$\frac{3\pi}{4}$		
$\frac{5\pi}{6}$		
π		
$\frac{7\pi}{6}$		
$\frac{5\pi}{4}$		
$\frac{4\pi}{3}$		
$\frac{3\pi}{2}$		
$\frac{5\pi}{3}$		
$\frac{7\pi}{4}$		
$\frac{11\pi}{6}$		
2π		



Sketch the polar graph $r = 4 \sin 3\theta$ by first completing the table of r – values for the given list of θ – values.

Give the exact value of r in each case, as well as a decimal approximation to 1 decimal place. Use $\sqrt{2} \approx 1.4$ and $\sqrt{3} \approx 1.8$.

Then plot all 17 points, and connect with a **smooth curve** in increasing order of θ .

$\theta =$	$r = 4 \sin 3\theta$ (exact value, may involve radicals)	$r = 4 \sin 3\theta$ (approximation to 1 decimal place)
0		
$\frac{\pi}{6}$		
$\frac{\pi}{4}$		
$\frac{\pi}{3}$		
$\frac{\pi}{2}$		
$\frac{2\pi}{3}$		
$\frac{3\pi}{4}$		
$\frac{5\pi}{6}$		
π		
$\frac{7\pi}{6}$		
$\frac{5\pi}{4}$		
$\frac{4\pi}{3}$		
$\frac{3\pi}{2}$		
$\frac{5\pi}{3}$		
$\frac{7\pi}{4}$		
$\frac{11\pi}{6}$		
2π		

