

Name KEY

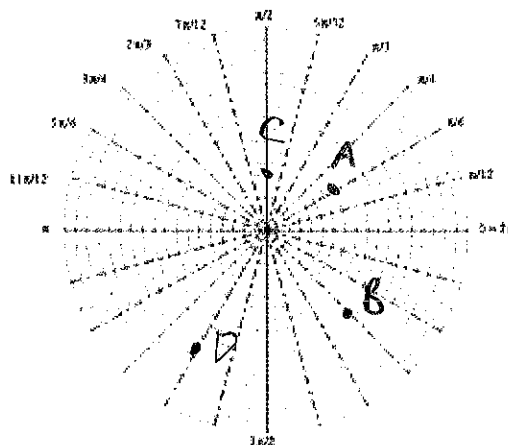
1. Graph each of the points below on the polar coordinate plane. Label your points with the correct letter.

(a) $(7, \frac{\pi}{6})$

(b) $(-10, \frac{3\pi}{4})$

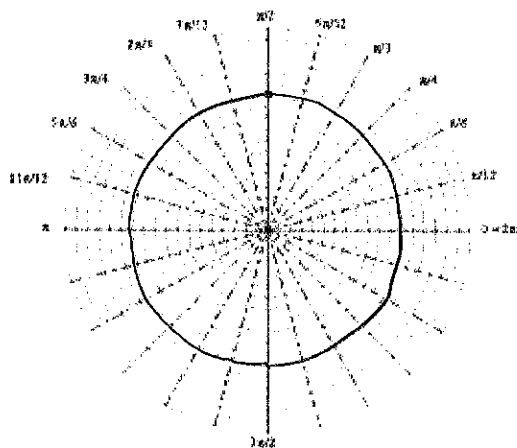
(c) $(5, -\frac{3\pi}{2})$

(d) $(-12, -\frac{5\pi}{3})$

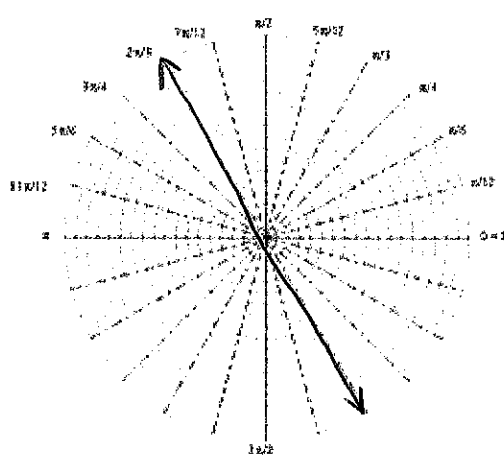


Graph each of these polar equations:

2. $r=12$



3. $\theta = \frac{2\pi}{3}$



Write the equation in polar form for:

4. A circle centered at the pole with a radius = 5.

$r = 5$

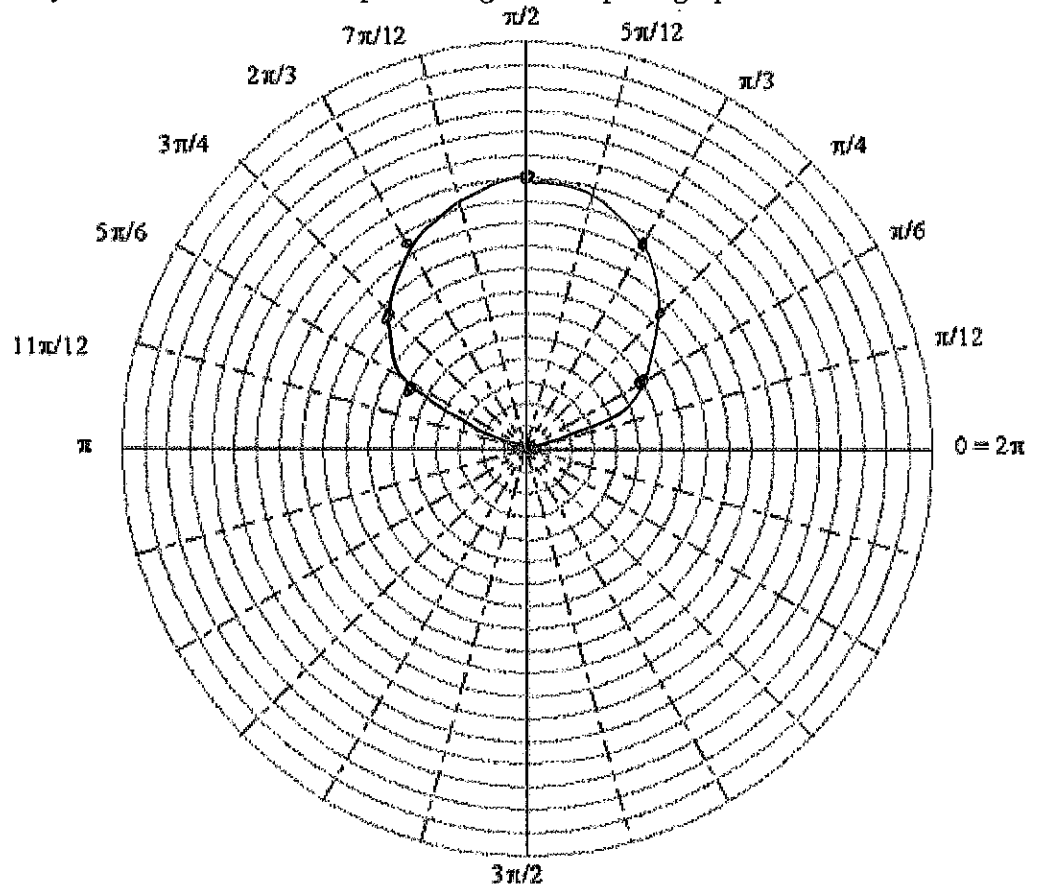
5. A line through the pole with a slope of 1

$\theta = \frac{\pi}{4}$

Find any symmetries the equation has, and complete the chart of values for each polar equation. Round values to the nearest tenth. Plot the points on the polar coordinate plane and connect the points **in order** as you plot them. You may have to use additional points to get a complete graph.

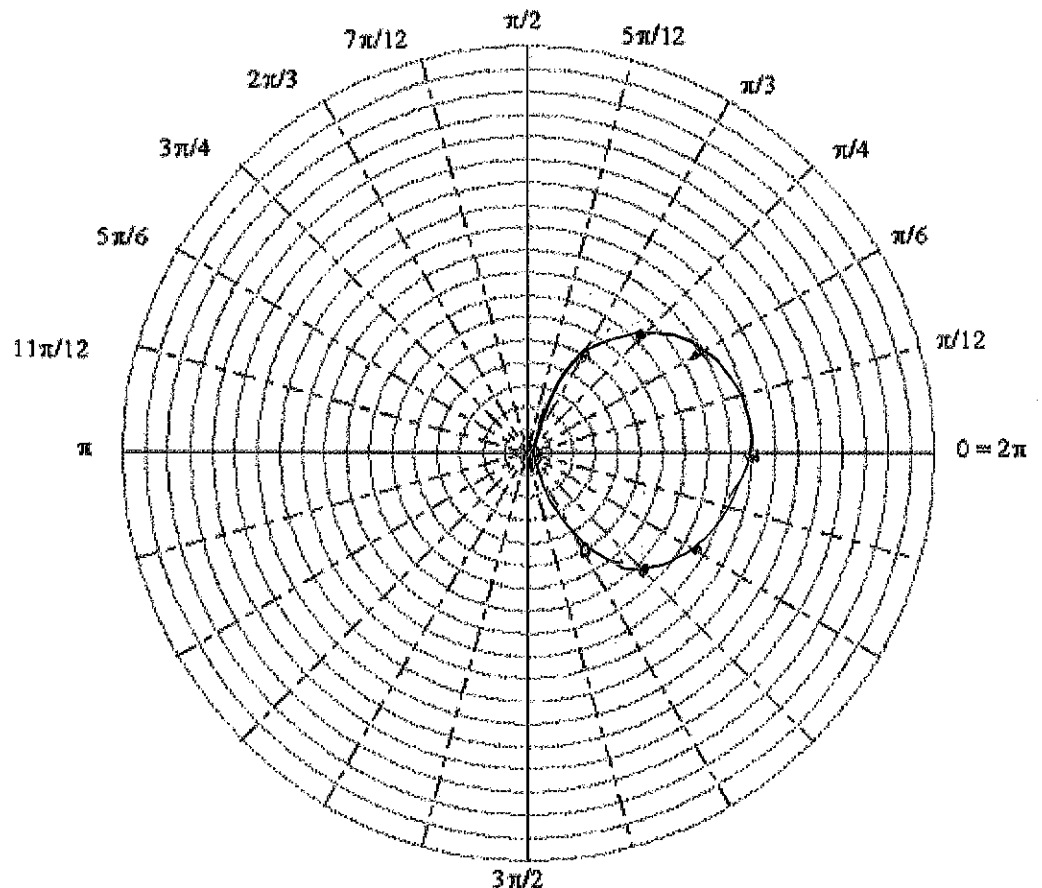
✓ 6. $r = 12 \sin \theta$

θ	r
0	0
$\frac{\pi}{6}$	6
$\frac{\pi}{4}$	8.5
$\frac{\pi}{3}$	10.4
$\frac{\pi}{2}$	12
$\frac{2\pi}{3}$	10.4
$\frac{3\pi}{4}$	8.5
$\frac{5\pi}{6}$	6
π	0



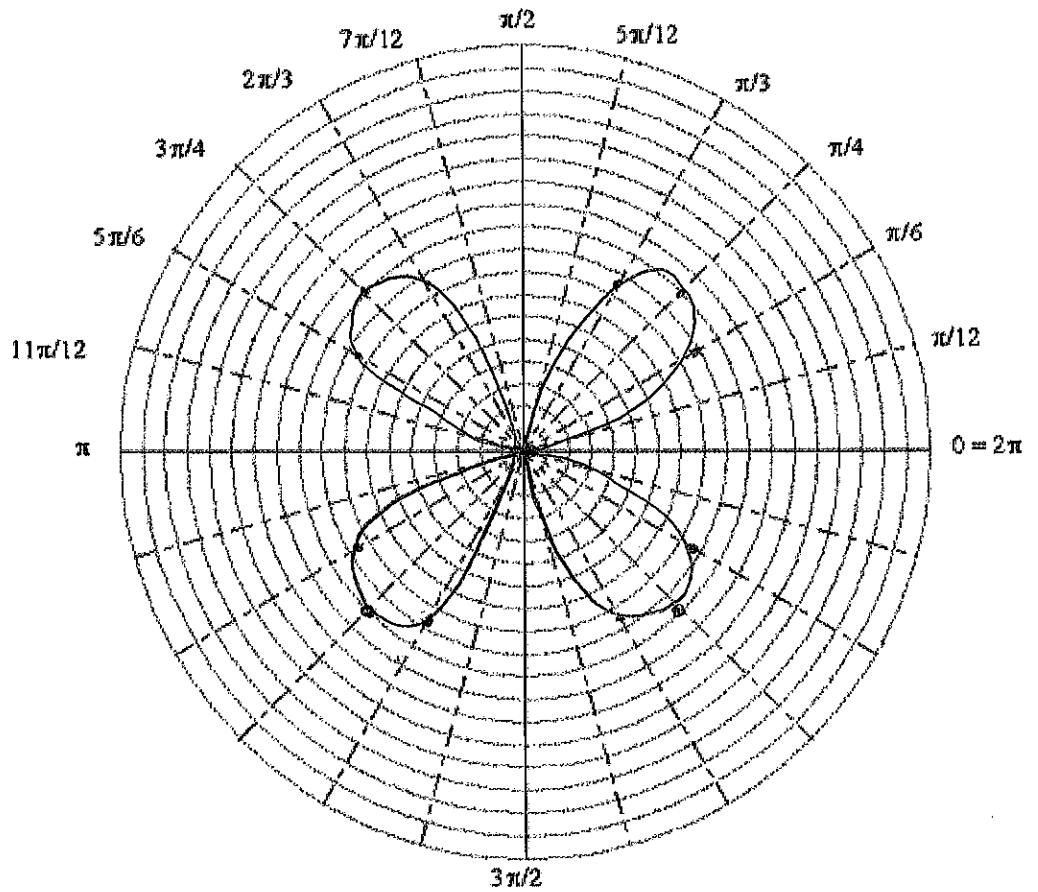
✓ 7. $r = 10 \cos \theta$

θ	r
0	10
$\frac{\pi}{6}$	8.7
$\frac{\pi}{4}$	7.1
$\frac{\pi}{3}$	5
$\frac{\pi}{2}$	0
$\frac{2\pi}{3}$	-5
$\frac{3\pi}{4}$	-7.1
$\frac{5\pi}{6}$	-8.7
π	-10



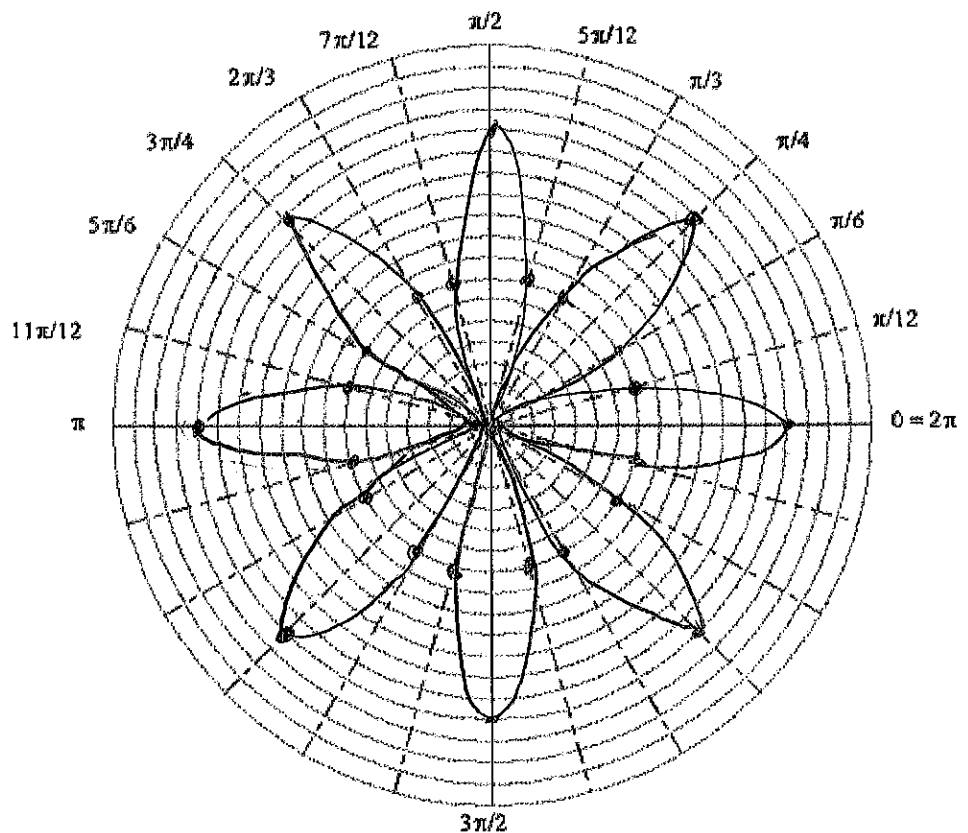
8. $r = 10 \sin(2\theta)$

θ	r
0	0
$\frac{\pi}{6}$	8.7
$\frac{\pi}{4}$	10
$\frac{\pi}{3}$	8.7
$\frac{\pi}{2}$	0
$\frac{2\pi}{3}$	-8.7
$\frac{3\pi}{4}$	-10
$\frac{5\pi}{6}$	-8.7
π	0



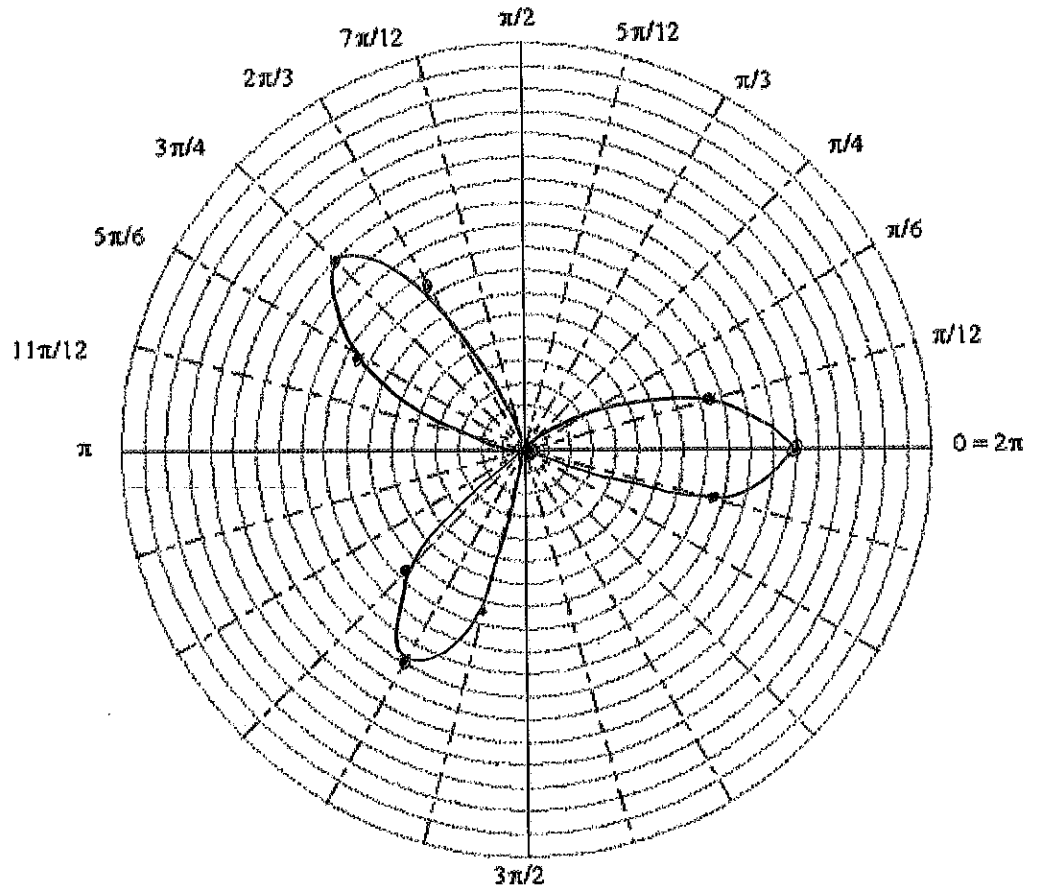
9. $r = 14 \cos(4\theta)$

θ	$r = 14 \cos 4\theta$	θ	$r = 14 \cos 4\theta$
0	14	$\sqrt{\frac{7\pi}{12}}$	7
$\frac{\pi}{12}$	7	$\sqrt{\frac{5\pi}{8}}$	0
$\frac{\pi}{8}$	0	$\sqrt{\frac{2\pi}{3}}$	-7
$\frac{\pi}{6}$	-7	$\sqrt{\frac{3\pi}{4}}$	-14
$\frac{\pi}{4}$	-14	$\sqrt{\frac{5\pi}{6}}$	-7
$\frac{\pi}{3}$	-7	$\sqrt{\frac{7\pi}{8}}$	0
$\frac{3\pi}{8}$	0	$\frac{11\pi}{12}$	7
$\frac{5\pi}{12}$	7	π	14
$\frac{\pi}{2}$	14		



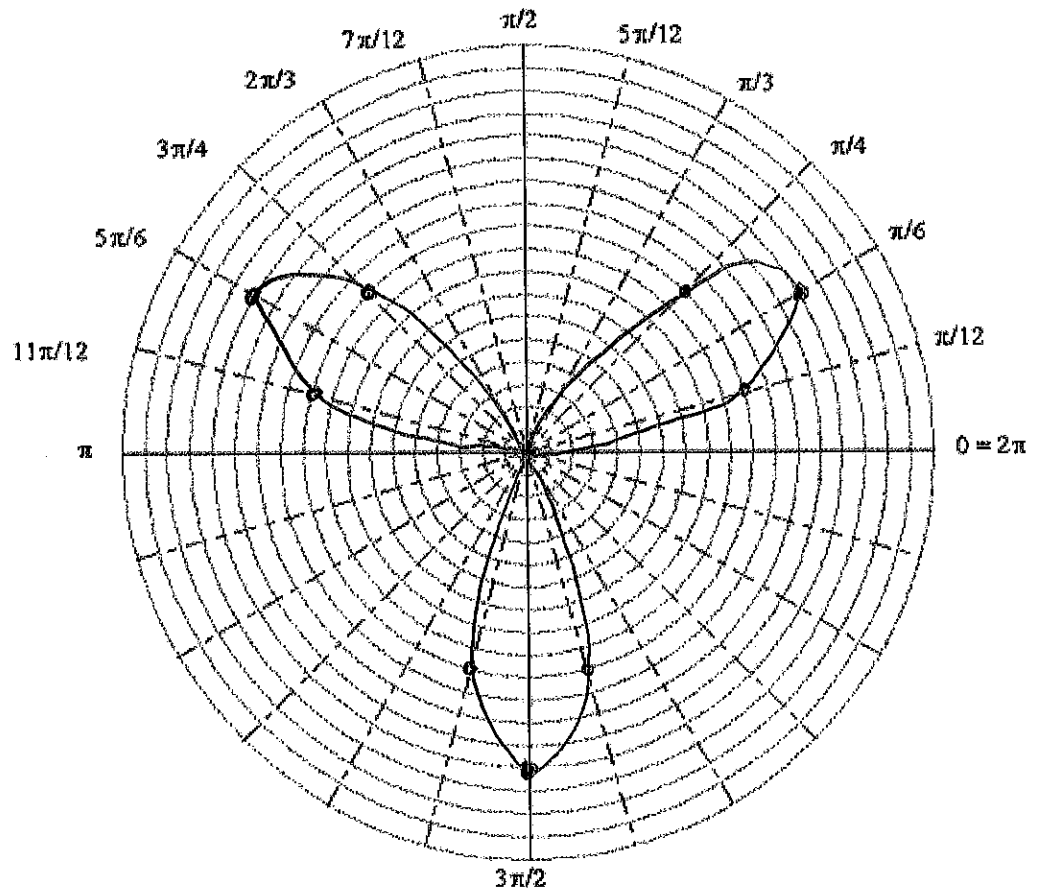
✓ 10. $r = 12 \cos(3\theta)$

θ	r
0	12
$\frac{\pi}{12}$	8.5
$\frac{\pi}{6}$	0
$\frac{\pi}{4}$	-8.5
$\frac{\pi}{3}$	-12
$\frac{5\pi}{12}$	-8.5
$\frac{\pi}{2}$	0



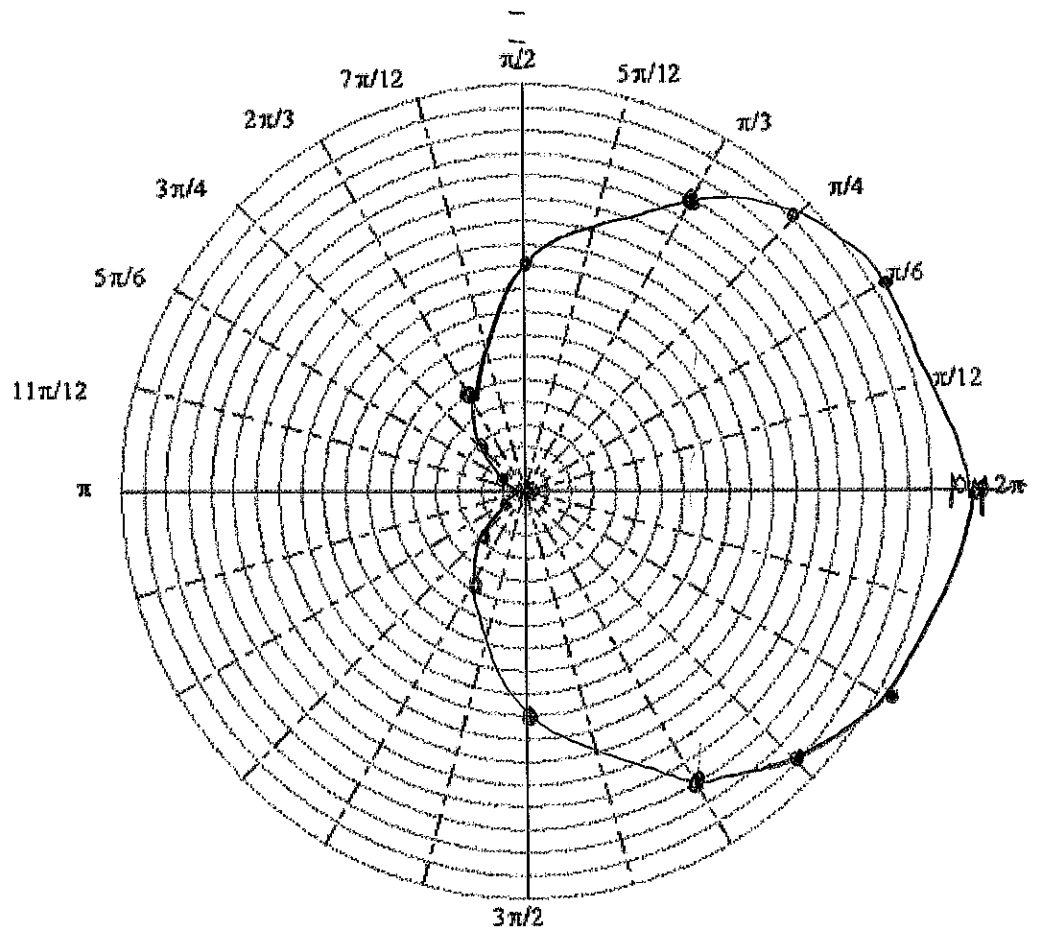
✓ 11. $r = 14 \sin(3\theta)$

θ	r
0	0
$\frac{\pi}{12}$	9.9
$\frac{\pi}{6}$	14
$\frac{\pi}{4}$	9.9
$\frac{\pi}{3}$	0
$\frac{5\pi}{12}$	-9.9
$\frac{\pi}{2}$	-14



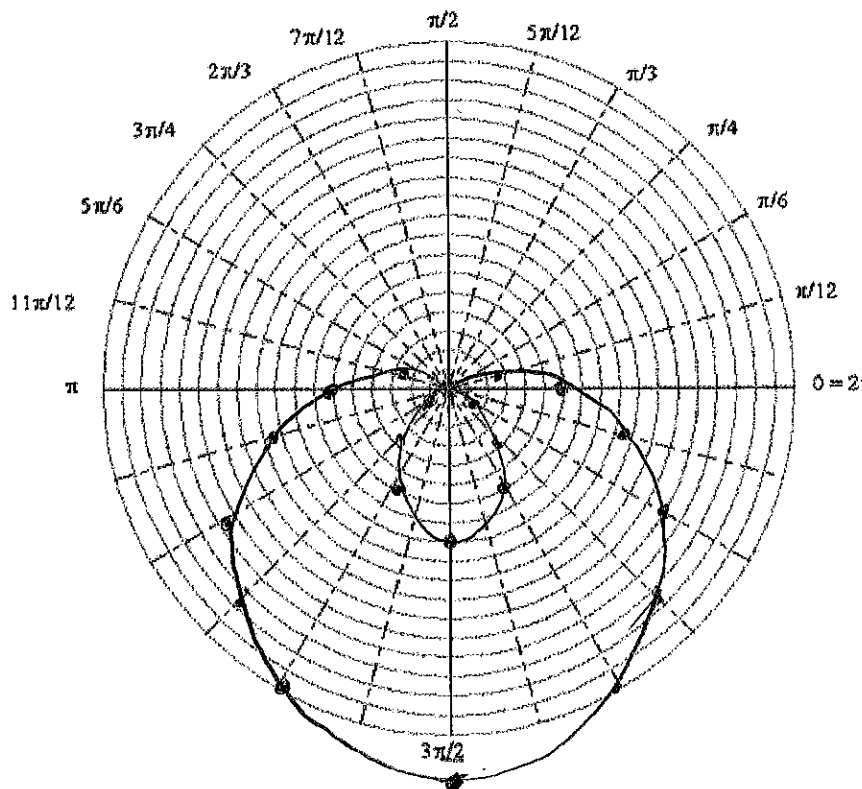
✓ 12. $r = 10 + 10 \cos \theta$

θ	r
0	20
$\frac{\pi}{6}$	18.7
$\frac{\pi}{4}$	17.1
$\frac{\pi}{3}$	15
$\frac{\pi}{2}$	10
$\frac{2\pi}{3}$	5
$\frac{3\pi}{4}$	2.1
$\frac{5\pi}{6}$	1.3
π	0



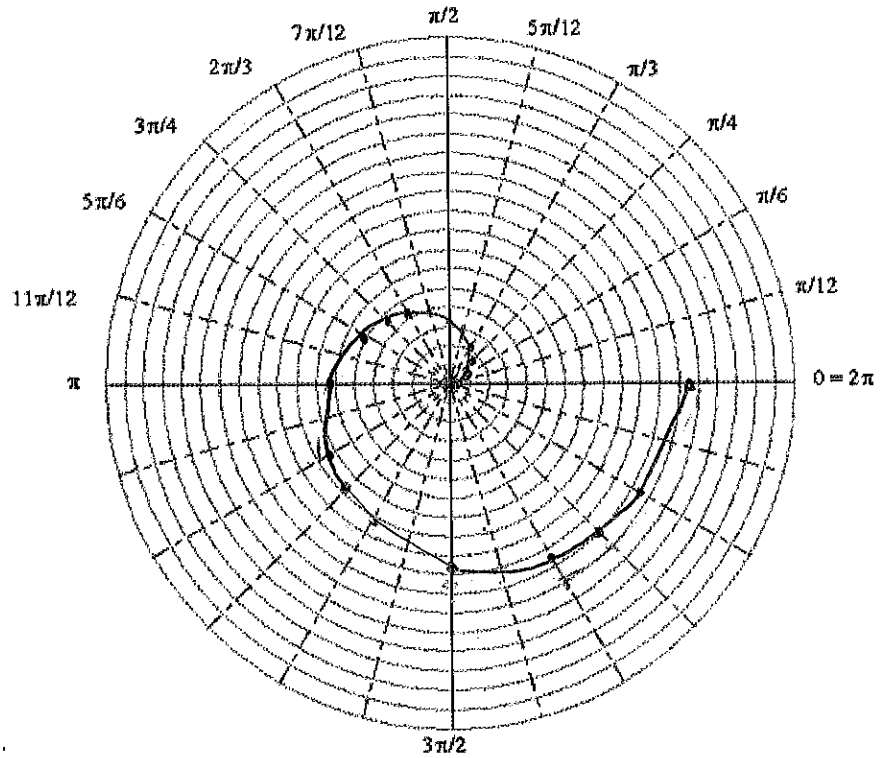
✓ 13. $r = 6 - 14 \sin \theta$

θ	$r = 6 - 14 \sin \theta$	θ	$r = 6 - 14 \sin \theta$
0	6	$\sqrt{\frac{13\pi}{12}}$	9.6
$\frac{\pi}{12}$	2.4	$\sqrt{\frac{7\pi}{6}}$	13
$\frac{\pi}{6}$	-1	$\sqrt{\frac{5\pi}{4}}$	15.9
$\frac{\pi}{4}$	-3.9	$\frac{4\pi}{3}$	18.1
$\frac{\pi}{3}$	-6.1	$\sqrt{\frac{3\pi}{2}}$	20
$\frac{\pi}{2}$	-8	$\frac{5\pi}{3}$	18.1
$\frac{2\pi}{3}$	-6.1	$\sqrt{\frac{7\pi}{4}}$	15.9
$\frac{3\pi}{4}$	-3.9	$\sqrt{\frac{11\pi}{6}}$	13
$\frac{5\pi}{6}$	-1	$\sqrt{\frac{23\pi}{12}}$	9.6
$\frac{11\pi}{12}$	2.4	$\sqrt{2\pi}$	6
π	6		



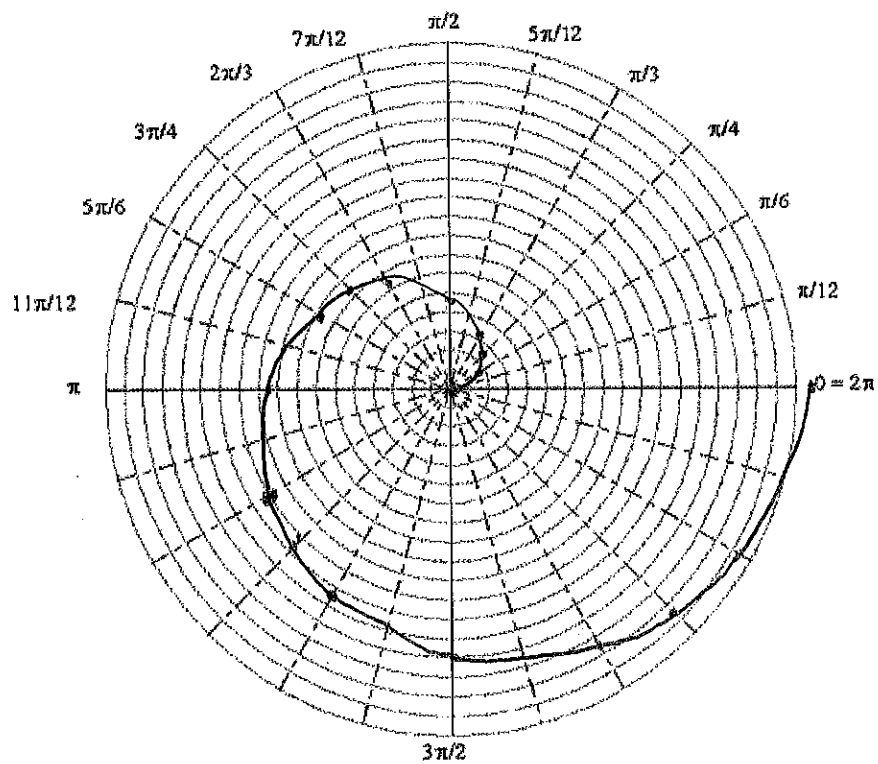
✓ 14. $r=2\theta$

θ	r	θ	r
0	0	$\frac{7\pi}{6}$	7.3
$\frac{\pi}{6}$	1.0	$\frac{5\pi}{4}$	7.9
$\frac{\pi}{4}$	1.6	$\frac{4\pi}{3}$	8.4
$\frac{\pi}{3}$	2.1	$\frac{3\pi}{2}$	9.4
$\frac{\pi}{2}$	3.1	$\frac{5\pi}{3}$	10.5
$\frac{2\pi}{3}$	4.2	$\frac{7\pi}{4}$	11.0
$\frac{3\pi}{4}$	4.7	$\frac{11\pi}{6}$	11.5
$\frac{5\pi}{6}$	5.2	2π	12.6
π	6.3		



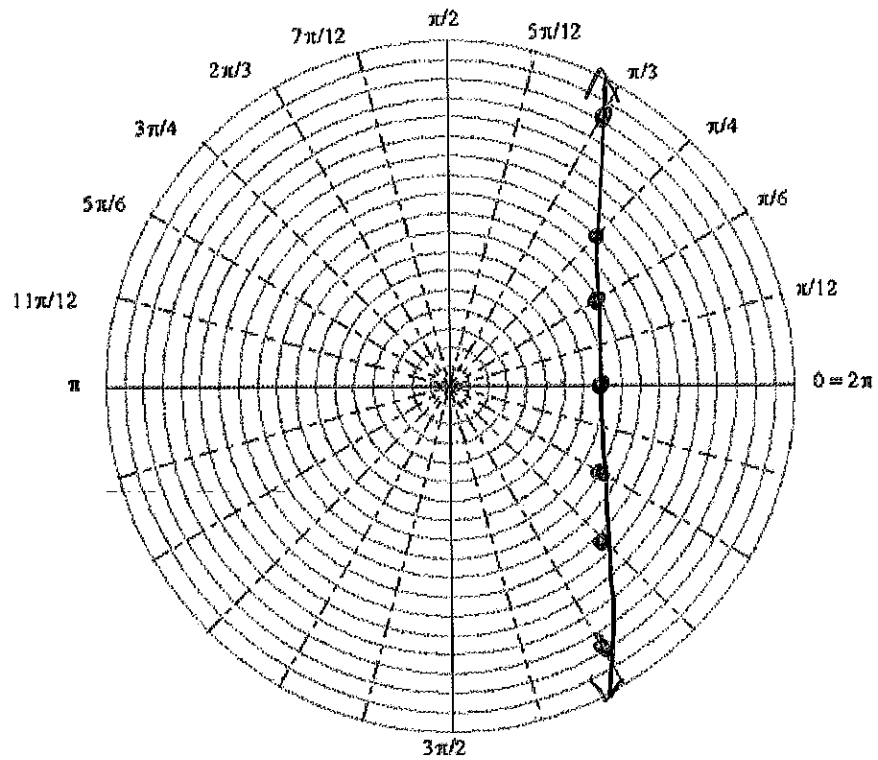
✓ 15. $r=3\theta$

θ	r	θ	r
0	0	$\frac{7\pi}{6}$	11.0
$\frac{\pi}{6}$	1.6	$\frac{5\pi}{4}$	11.8
$\frac{\pi}{4}$	2.4	$\frac{4\pi}{3}$	12.6
$\frac{\pi}{3}$	3.1	$\frac{3\pi}{2}$	14.1
$\frac{\pi}{2}$	4.7	$\frac{5\pi}{3}$	15.7
$\frac{2\pi}{3}$	6.3	$\frac{7\pi}{4}$	16.5
$\frac{3\pi}{4}$	7.1	$\frac{11\pi}{6}$	17.3
$\frac{5\pi}{6}$	7.9	2π	18.9
π	9.4		



$$16. r = \frac{8}{\cos \theta}$$

θ	r	θ	r
0	8	$\frac{7\pi}{6}$	-9.2
$\frac{\pi}{6}$	9.2	$\frac{5\pi}{4}$	-11.3
$\frac{\pi}{4}$	11.3	$\frac{4\pi}{3}$	-16
$\frac{\pi}{3}$	16	$\frac{3\pi}{2}$	undef
$\frac{\pi}{2}$	undef	$\frac{5\pi}{3}$	16
$\frac{2\pi}{3}$	-16	$\frac{7\pi}{4}$	11.3
$\frac{3\pi}{4}$	-11.3	$\frac{11\pi}{6}$	9.2
$\frac{5\pi}{6}$	-9.2	2π	8
π	-8		



$$17. r = \frac{10}{\sin \theta}$$

θ	r	θ	r
0	undef	$\frac{7\pi}{6}$	-20
$\frac{\pi}{6}$	20	$\frac{5\pi}{4}$	-14.1
$\frac{\pi}{4}$	14.1	$\frac{4\pi}{3}$	-11.5
$\frac{\pi}{3}$	11.5	$\frac{3\pi}{2}$	-10
$\frac{\pi}{2}$	10	$\frac{5\pi}{3}$	-11.5
$\frac{2\pi}{3}$	11.5	$\frac{7\pi}{4}$	-14.1
$\frac{3\pi}{4}$	14.1	$\frac{11\pi}{6}$	-20
$\frac{5\pi}{6}$	20	2π	undef
π	undef		

