

8.2 Graphing Polar Equations

- | | |
|--------------------|---------|
| A. 1. limacon | B. 1. C |
| 2. circle | 2. E |
| 3. rose | 3. D |
| 4. limacon | 4. A |
| 5. limacon w/ loop | 5. A |
| 6. rose | 6. D |
| 7. limacon w/ loop | 7. A |
| 8. cardioid | 8. A |
| 9. line | 9. F |
| 10. circle | 10. C |
| 11. line | 11. F |
| 12. circle | 12. E |
| 13. line | 13. B |
| | 14. C |

C. 1. $r = 4 \cos \theta, \theta = \pi/6$
 $r = 4 \cos(\pi/6)$
 $4(\sqrt{3}/2) = \boxed{2\sqrt{3}}$

4. $r = 2 - 4 \cos \theta, \theta = 4\pi/3$
 $r = 2 - 4 \cos(4\pi/3)$
 $r = 2 - 4(-1/2) = \boxed{4}$

2. $r = 3 + 3 \sin \theta, \theta = \pi/4$
 $r = 3 + 3 \sin(\pi/4)$
 $r = 3 + \frac{3\sqrt{2}}{2}$
 $r = \boxed{\frac{6 + 3\sqrt{2}}{2}}$

5. $r = 5 \sin 9\theta, \theta = \pi/6$
 $r = 5 \sin(9\pi/6)$
 $r = 5 \sin(3\pi/2)$
 $r = 5(-1) = \boxed{-5}$

3. $r = 4 + 2 \sin \theta, \theta = 5\pi/6$
 $r = 4 + 2 \sin(5\pi/6)$
 $r = 4 + 2(1/2) = \boxed{5}$

6. $r = 4 \cos 4\theta, \theta = \pi/4$
 $r = 4 \cos(4 \cdot \pi/4)$
 $r = 4 \cos \pi$
 $r = 4(-1) = \boxed{-4}$

C. Find the r value for the given angle.

1. $r = 4\cos \theta$ for $\frac{\pi}{6}$

2. $r = 3 + 3\sin \theta$ for $\frac{\pi}{4}$

3. $r = 4 + 2\sin \theta$ for $\frac{5\pi}{6}$

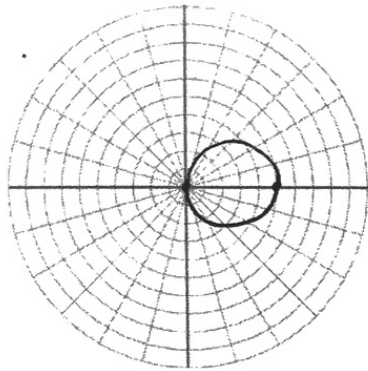
4. $r = 2 - 4\cos \theta$ for $\frac{4\pi}{3}$

5. $r = 5\sin 9\theta$ for $\frac{\pi}{6}$

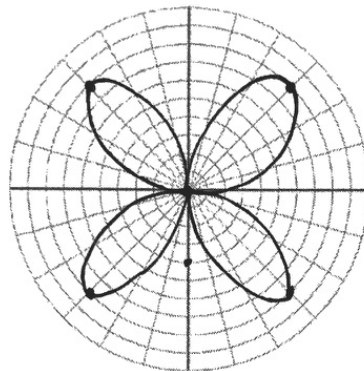
6. $r = 4\cos 4\theta$ for $\frac{\pi}{4}$

D. Graph the following polar equations.

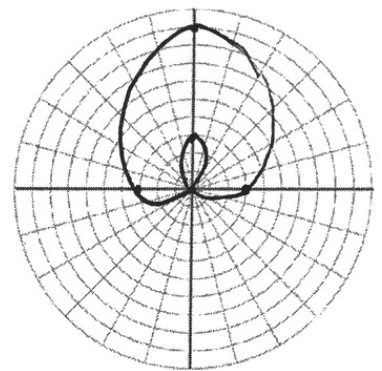
1. $r = 5\cos \theta$



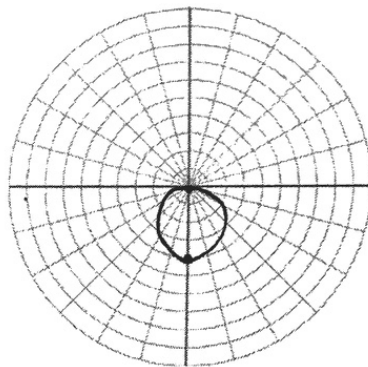
4. $r = 8\sin 2\theta$



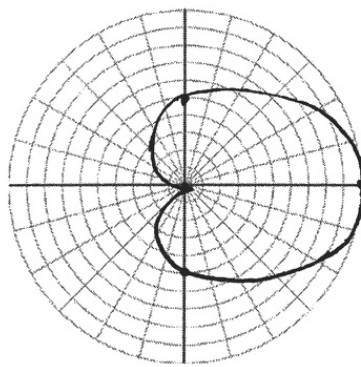
7. $r = 3 + 6\sin \theta$



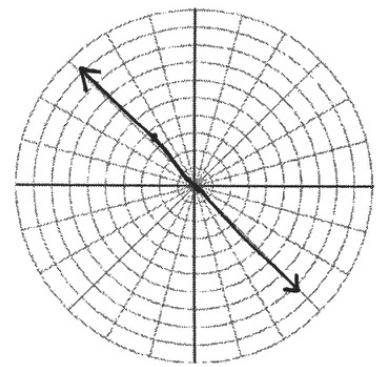
2. $r = -4\sin \theta$



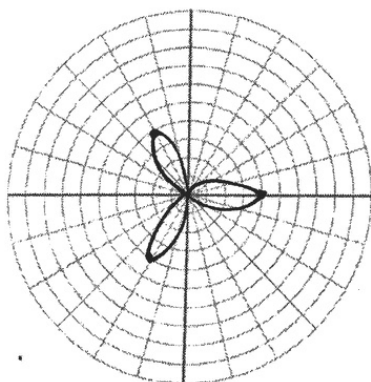
5. $r = 5 + 5\cos \theta$



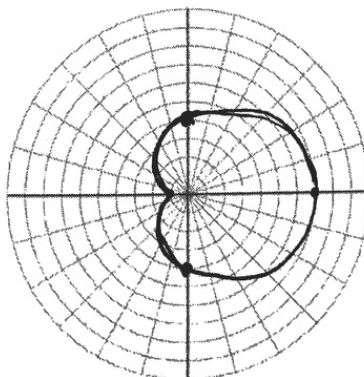
8. $\theta = -\frac{\pi}{4}$



3. $r = 4\cos 3\theta$



6. $r = 4 + 3\cos \theta$



9. $r = 8$

