

1. Plot the following:

A. $\left(6, \frac{7\pi}{6}\right)$

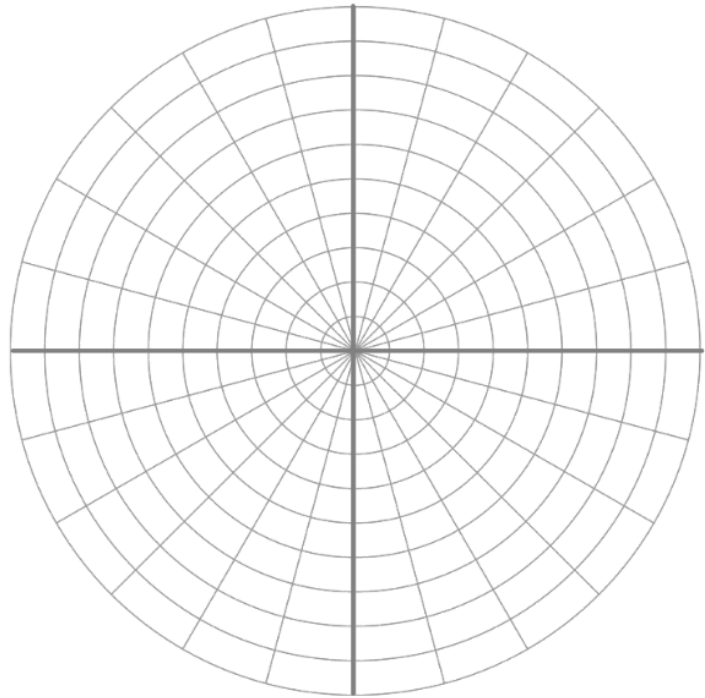
B. $\left(3, -\frac{3\pi}{4}\right)$

C. $(8, \pi)$

D. $\left(-6, \frac{5\pi}{3}\right)$

E. $\left(-5, -\frac{11\pi}{6}\right)$

F. $\left(-4, -\frac{2\pi}{3}\right)$



Find the rectangular coordinates for each of the following polar coordinates:

2. $\left(4, \frac{5\pi}{6}\right)$

3. $\left(8, -\frac{2\pi}{3}\right)$

Given the rectangular coordinates below, find 4 polar coordinates satisfying the conditions given:

4. $(3, -3);$

5. $(-5, -5\sqrt{3});$

6. $(4\sqrt{3}, 4);$

Change the following polar equations to rectangular equations:

7. $r = 8$

8. $r \cos \theta = 6$

9. $r = -5 \csc \theta$

10. $r = 7 \sin \theta$

Change the following rectangular equations to polar equations:

11. $x^2 + y^2 = 81$

12. $y = -5$

13. $y^2 = 10x$

14. $3xy = 7$

PRE-CALCULUS

Name: _____

Convert to rectangular coordinates:

1. $\left(-4, \frac{5\pi}{3}\right)$

Convert to 4 different polar coordinates:

2. $(-4, 4)$;

Change the following polar equations to rectangular equations:

3. $r = -3\sec \theta$

4. $r = 5\cos \theta$

Change the following rectangular equations to polar equations:

5. $x^2 + y^2 = 10$

6. $2x - y^2 = 0$

Identify the polar graph (*circle with center at pole, circle with center on x-axis, circle with center on y-axis*):

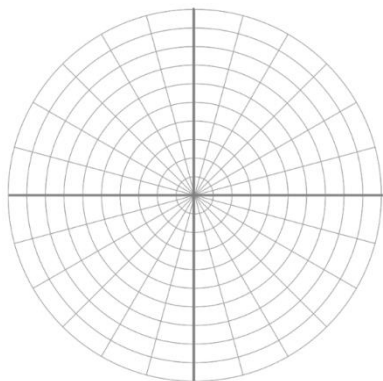
7. $r = -4\cos \theta$

8. $r = 4$

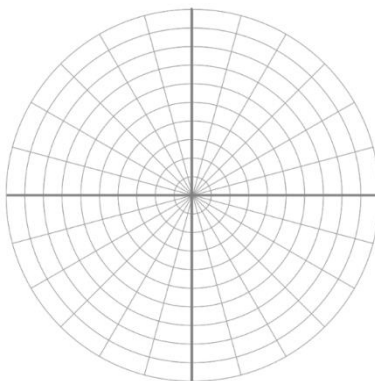
9. $r = 4\sin \theta$

Graph:

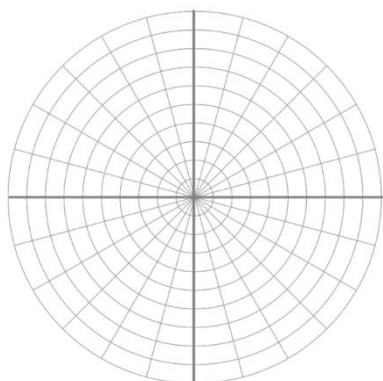
10. $r = 6$



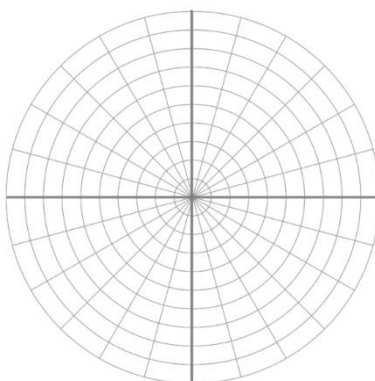
11. $\theta = -\frac{5\pi}{6}$



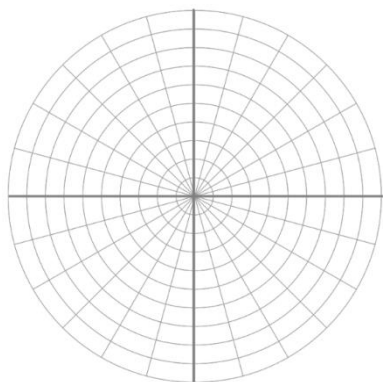
12. $r = 6\cos\theta$



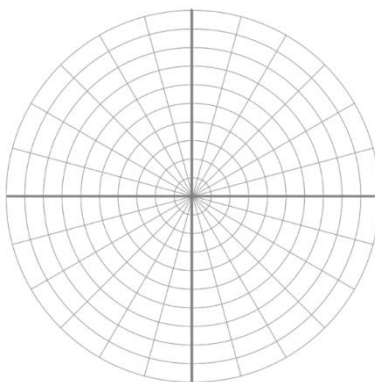
13. $r = -4\sin\theta$



14. $r = -5\cos\theta$



15. $r = 4\sin\theta$

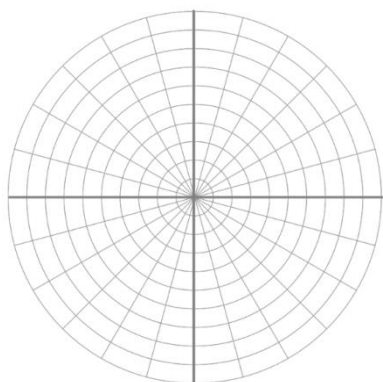


PRE-CALCULUS

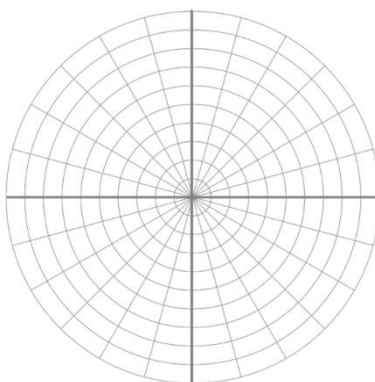
Name: _____

Graph:

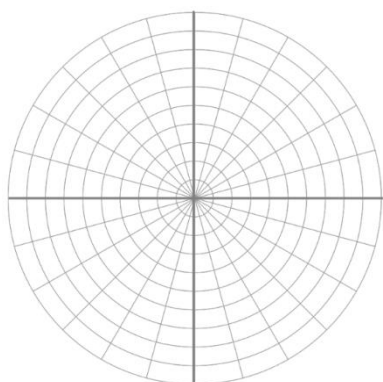
1. $r = 3 + 3\cos\theta$



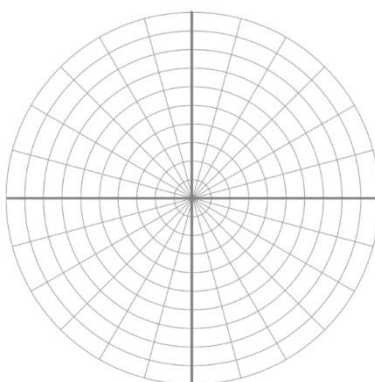
2. $r = 4 - 4\sin\theta$



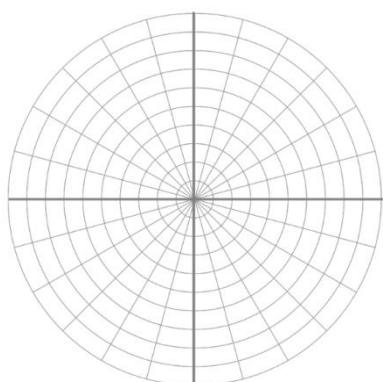
3. $r = 4 + 6\cos\theta$



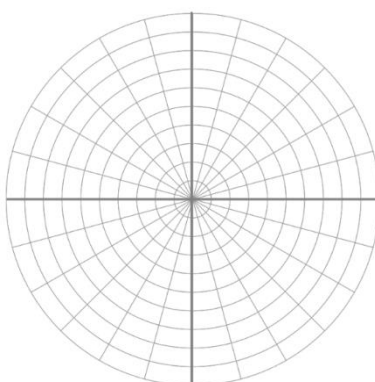
4. $r = 7 - 2\sin\theta$



5. $r = 5 - 3\cos\theta$



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



PRE-CALCULUS

Name: _____

Identify the polar graph (*circle, cardioid, limacon, rose*):

If a circle, give the radius/If a limacon, name the type/If a rose, state the number of petals.

1. $r = 4 \cos \theta$

2. $r = 5 - 2 \sin \theta$

3. $r = -7 \sin 10\theta$

4. $r = 4 + 7 \sin \theta$

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

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

7. $r = 8 \cos 5\theta$

8. $r = -8$

9. $r = 8 + 6 \cos \theta$

Identify the polar graph (*circle, cardioid, limacon, rose*):

If a circle, give the radius/If a limacon, name the type/If a rose, state the number of petals.

1. $r = 4 \cos \theta$

2. $r = 5 - 2 \sin \theta$

3. $r = -7 \sin 10\theta$

4. $r = 4 + 7 \sin \theta$

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

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

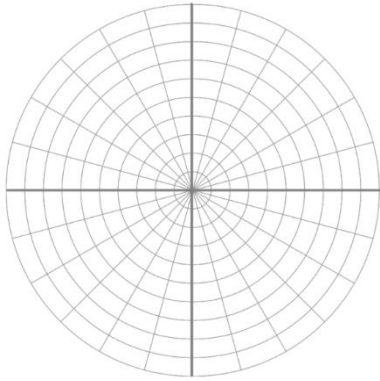
7. $r = 8 \cos 5\theta$

8. $r = -8$

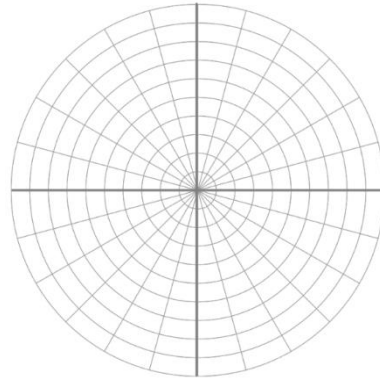
9. $r = 8 + 6 \cos \theta$

Graph:

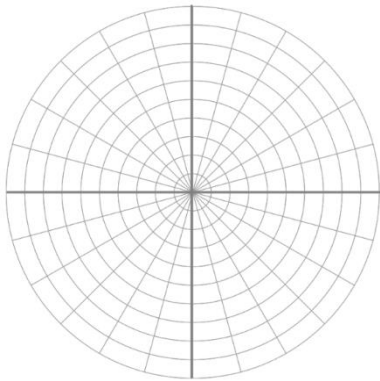
12. $r = 6 \sin 2\theta$



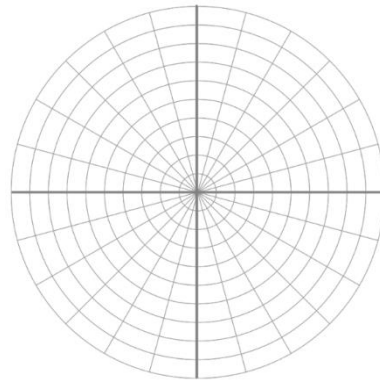
13. $r = 7 \cos 3\theta$



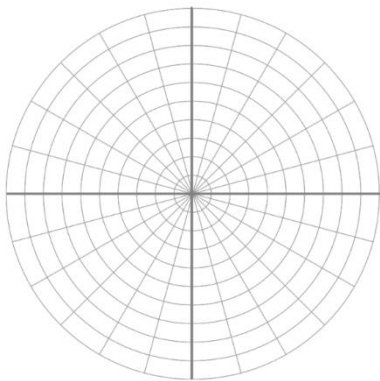
14. $r = -8 \cos \theta$



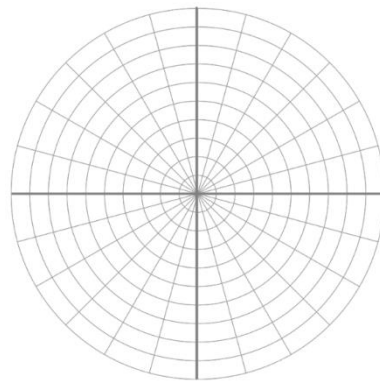
15. $r = 8 \sin \theta$



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



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



PRE-CALCULUS

Name: _____

PRACTICE TEST

Convert to rectangular coordinates:

1. $\left(-5, -\frac{5\pi}{6}\right)$

Change to a rectangular equation:

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

Convert to polar coordinates:

2. $(-6, 6\sqrt{3})$; $r \leq 0$ and $0 \leq \theta \leq 2\pi$

Change to a polar equation:

4. $x + y = 2x$

Match the equation to the type of polar graph.

5. $r = 6 - 5\cos \theta$

A. line

I. dimpled limaçon

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

B. circle with center at pole

J. limaçon with inner loop

7. $r = -4\theta$

C. circle with center on x-axis

K. rose with 2 petals

8. $r = 6\cos 4\theta$

D. circle with center on y-axis

L. rose with 3 petals

9. $r = 8\cos \theta$

E. spiral out

M. rose with 4 petals

10. $r = 6 + 2\sin \theta$

F. spiral in

N. rose with 5 petals

11. $r = -8\sin 3\theta$

G. cardioid

O. rose with 6 petals

12. $r = 5 - 5\cos \theta$

H. convex limaçon

P. rose with 8 petals

Graph:

13. $r = 8\cos \theta$

14. $r = 5 - 5\sin \theta$

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

16. $r = -5\sin 2\theta$