

Name: _____

Polar Review

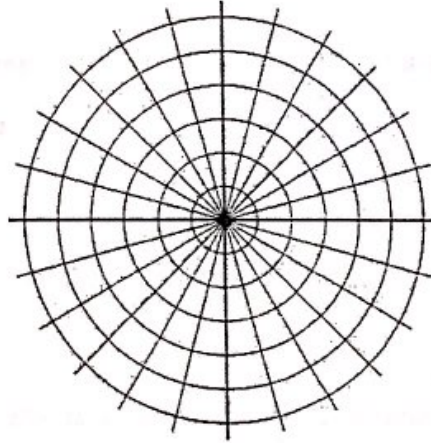
Plot each polar coordinate on the graph.

1. $A(4, 270^\circ)$

2. $B(-3, \pi)$

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

4. $D(-3, 120^\circ)$



Convert each of the following rectangular coordinates to polar coordinates. Answers for θ should be in radians, exact answers if possible. If you need to have decimals, please round to the nearest thousandth.

5. $(-3, 3)$

6. $(-2, -2\sqrt{3})$

7. $(-0.8, -2.1)$

8. $(-2.3, 0.2)$

Convert each of the following polar coordinates to rectangular coordinates. Decimals should be rounded to the nearest thousandth.

9. $(5, 300^\circ)$

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

11. $(-3.1, 182^\circ)$

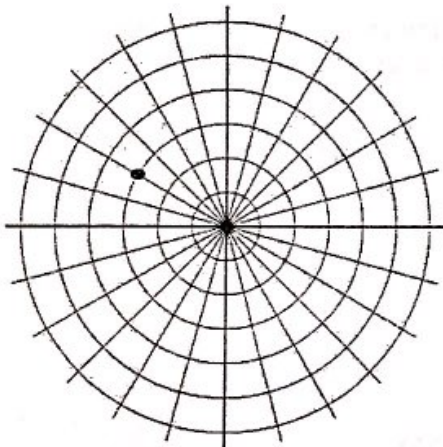
12. $(8.1, 5.2)$

Find the other 3 polar coordinates that represent the same point for $-2\pi \leq \theta \leq 2\pi$.

13. $(4, \frac{3\pi}{4})$

14. $(-2, -\frac{2\pi}{3})$

15. Find all polar coordinates for the point such that $-2\pi \leq \theta \leq 2\pi$.



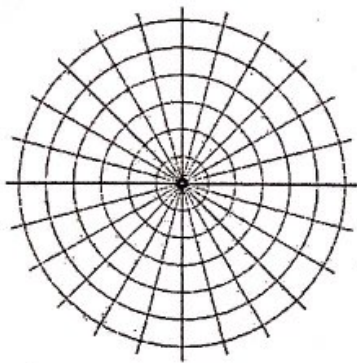
Find the other 3 polar coordinates that represent the same point for $-360^\circ \leq \theta \leq 360^\circ$.

16. $(3, -20^\circ)$

17. $(-4, 103^\circ)$

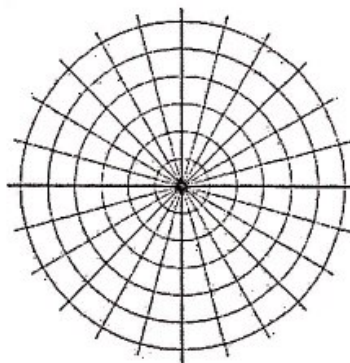
Graph each polar equation. Then convert the equation to rectangular form.

18. $r = 3$



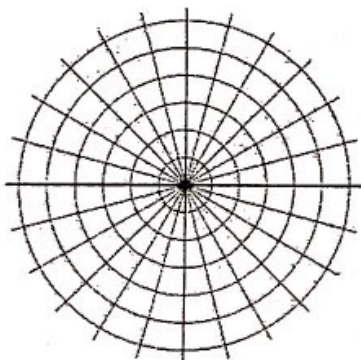
rectangular equation:

19. $r = 5$



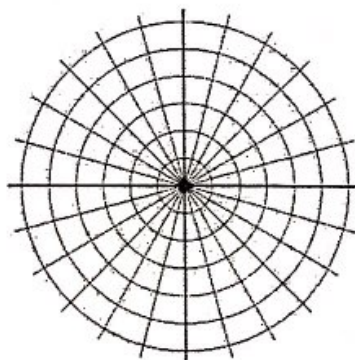
rectangular equation:

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



rectangular equation:

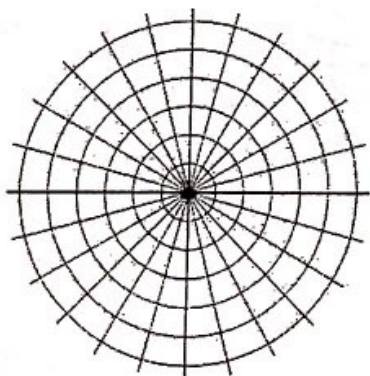
19. $\theta = 30^\circ$



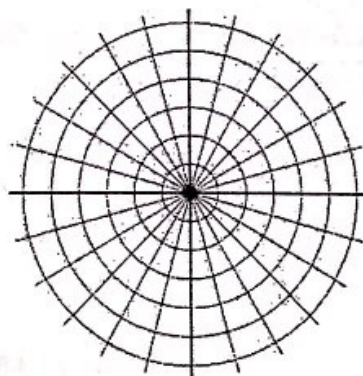
rectangular equation:

Convert the following polar equations into rectangular equations so that you can graph them.

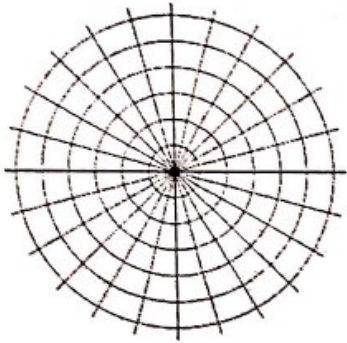
20. $r = 3 \sec \theta$



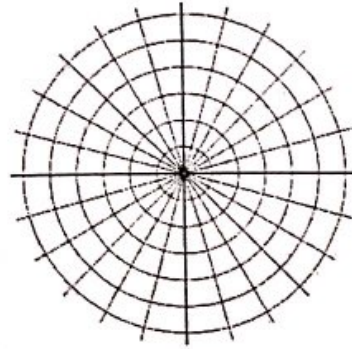
21. $r = -5 \csc \theta$



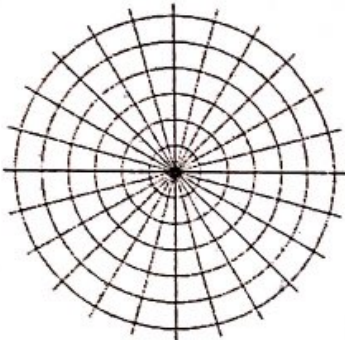
22. $r = -\frac{1}{\cos \theta}$



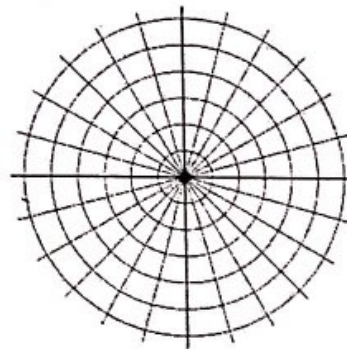
23. $r = \frac{4}{\sin \theta}$



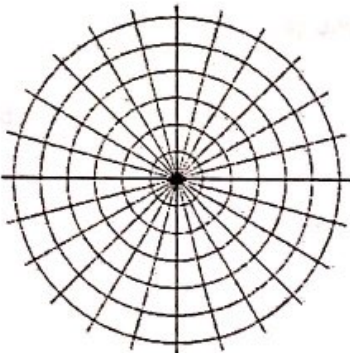
24. $r = 4 \sin \theta$



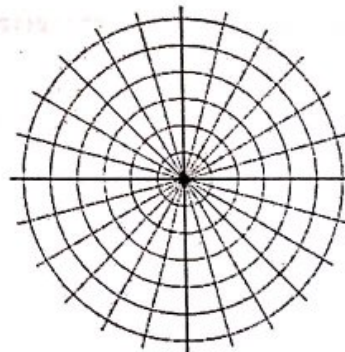
25. $r = -6 \cos \theta$



25. $r = 5 \cos \theta$



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



Convert each of the following polar equations to rectangular form (general conic form). Classify the conic.

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

28. $r = \frac{1}{1 + \cos \theta}$

29. $r = \frac{3}{5 - 2 \sin \theta}$

30. $r = \frac{2}{1 + 4 \cos \theta}$

Convert each of the following rectangular equations to polar form.

31. $x^2 + y^2 = 4x$

32. $(x - 7)^2 + (y + 2)^2 = 53$

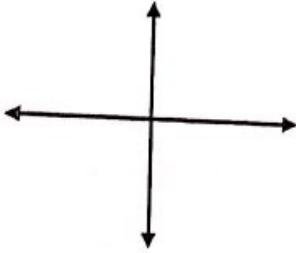
33. $y = -x$

34. $y = \frac{\sqrt{3}}{3}x$

Identify and sketch a graph for the following.

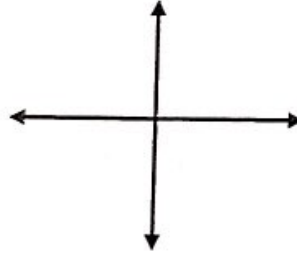
35. $r = 2 - \cos \theta$

identification:



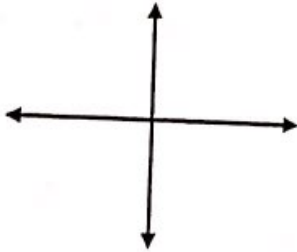
36. $r = 1 - 2 \sin \theta$

identification:



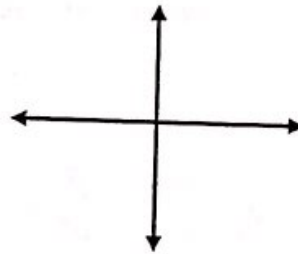
37. $r = 4 + 2 \sin \theta$

identification:



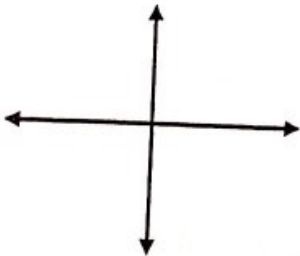
38. $r = 2 \sin 2\theta$

identification:



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

identification:



40. $r = 6 \sin 3\theta$

identification:

