

In each case of the function given in polar coordinates, convert the equation in rectangular coordinates and graph the equation.

1.)  $\theta = \frac{\pi}{3}$

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

7.)  $r = \cos 2\theta$

10.)  $r = \sin 3\theta$

2.)  $r = 3$

5.)  $r = 1 + 2 \cos \theta$

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

11.)  $r = \sin \theta + \cos \theta$

3.)  $r = 2 \sin \theta$

6.)  $r = 1 + \cos \theta$

9.)  $r = \cos 3\theta$

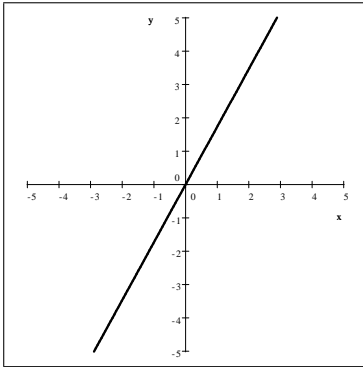
12.)  $r = \theta$

## Answers

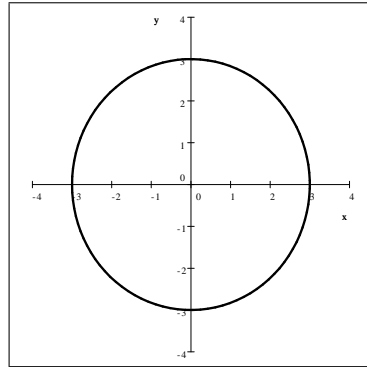
In each case of the function given in polar coordinates,

- a) convert the equation in rectangular coordinates      b) graph the equation.

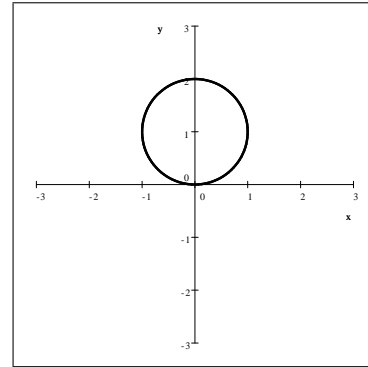
1.)  $\theta = \frac{\pi}{3}$   
 $y = \sqrt{3}x$



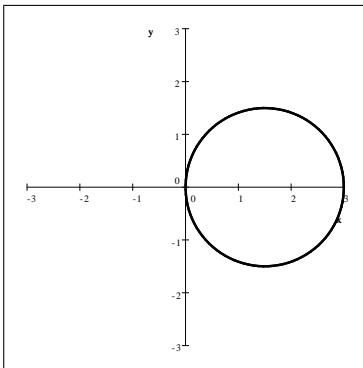
2.)  $r = 3$   
 $x^2 + y^2 = 9$



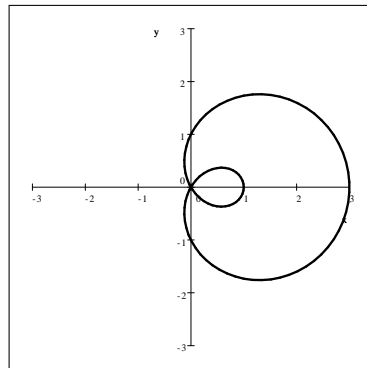
3.)  $r = 2 \sin \theta$   
 $x^2 + (y - 1)^2 = 1$



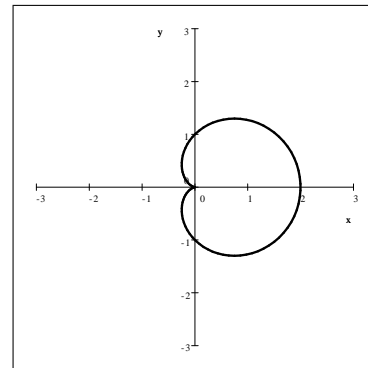
4.)  $r = 3 \cos \theta$   
 a)  $\left(x - \frac{3}{2}\right)^2 + y^2 = \frac{9}{4}$



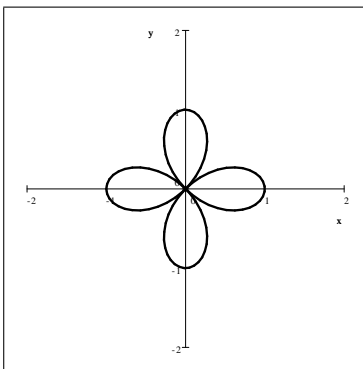
5.)  $r = 1 + 2 \cos \theta$   
 $(x^2 + y^2 - 2x)^2 = x^2 + y^2$



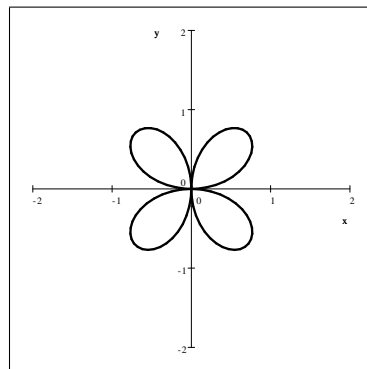
6.)  $r = 1 + \cos \theta$   
 $(x^2 + y^2 - x)^2 = x^2 + y^2$



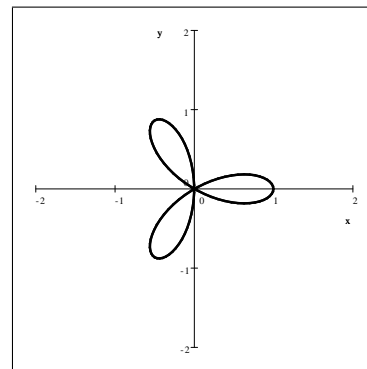
7.)  $r = \cos 2\theta$   
 $(x^2 + y^2)^3 = (x^2 - y^2)^2$



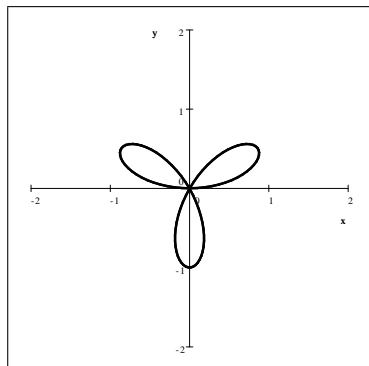
8.)  $r = \sin 2\theta$   
 $(x^2 + y^2)^3 = 4x^2y^2$



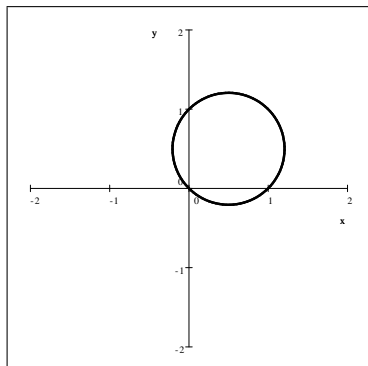
9.)  $r = \cos 3\theta$



10.)  $r = \sin 3\theta$

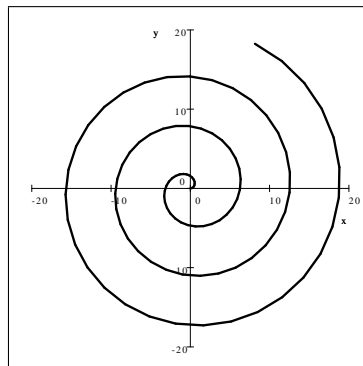


11.)  $r = \sin \theta + \cos \theta$   
 $\left(x - \frac{1}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2 = \frac{1}{2}$



12.)  $r = \theta$

$\tan\left(\sqrt{x^2 + y^2}\right) = \left(\frac{y}{x}\right)$



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