1) $r = -3\cos(\theta)$ Setup the problem

2) $r \cdot r = -3r \cdot \cos(\theta)$

    $r^2 = -3r\cos(\theta)$ Multiply both sides by r

3) $x^2 + y^2 = -3x$ Replace r^2 with $x^2 + y^2$ and $r\cos(\theta)$ with x

4) $x^2 + y^2 + 3x = 0$ Move $-3x$ to the left by adding it

5) $x^2 + 3x + y^2 = 0$ Rearrange so the x terms are together

6) $\left(x + \dfrac{3}{2}\right)^2 - \dfrac{9}{4} + y^2 = 0$ Complete the square on the terms with x

7) $\left(x + \dfrac{3}{2}\right)^2 + y^2 = \dfrac{9}{4}$ Move the $\dfrac{-9}{4}$ from step 6) to the right side

8) $\left[x - \left(\dfrac{-3}{2}\right)\right]^2 + y^2 = \left(\dfrac{3}{2}\right)^2$ Rewrite as shown so you can easily identify the horizontal shift, and the radius fo the circle. Remember that something like x+3 is the same as $(x-(-3))$.

Now we can conclude we have a circle with center $\left(\dfrac{-3}{2}, 0\right)$ and radius r = $\dfrac{3}{2}$