MATH 142 (Section H01)
Prof. Meade

Quiz 6
October 20, 2014

University of South Carolina
Fall 2014

Name: Key
Section: H01

1. (5 points) Sketch the curve with the given polar equation.

(a) $r^2 - 4r = 3$

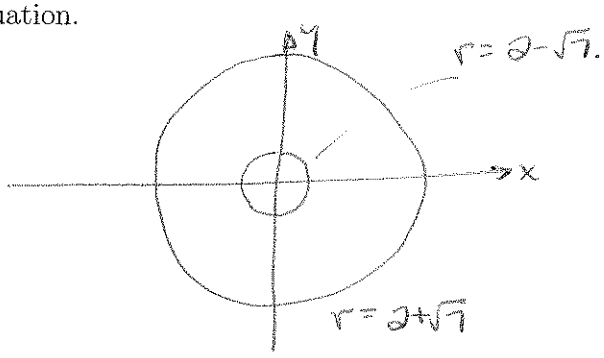
$r^2 - 4r - 3 = 0$

$r = \frac{1}{2}(4 \pm \sqrt{16 + 12})$

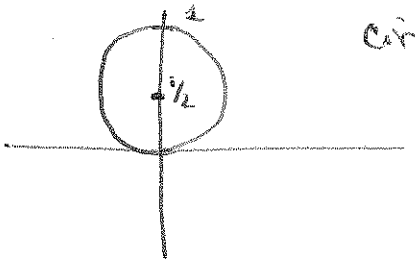
$= \frac{1}{2}(4 \pm \sqrt{28})$

$= \frac{1}{2}(4 \pm 2\sqrt{7}) = 2 \pm \sqrt{7}$.

$\approx 2 \pm 2.6 = 4.6$ or -0.6.



(b) $r = \sin(\theta)$



circle centered at $(0, 1/2)$ with radius $1/2$

2. (5 points) Find a polar equation for the curve represented by the Cartesian equation $x + y = 9$.

$x + y = 9$

$r\cos\theta + r\sin\theta = 9$

$r(\cos\theta + \sin\theta) = 9$

$r = \dfrac{9}{\cos\theta + \sin\theta}$.