Math 53 - Multivariable Calculus

Quiz # 2

January 25th, 2012

Exercise 1. *Find a polar equation for the curve represented in Cartesian coordinates by* $x^2 + y^2 = 2cx$*, where here* $c \in \mathbb{R}$*.*

Exercise 2. *Show that the polar equation* $r = a\sin(\theta) + b\cos(\theta)$*, where* $ab \neq 0$*, represents a circle, and find its center and radius.*

Exercise 3. *find the area of the region that lies inside the curves* $r = \sin(2\theta)$ *and* $r = \cos(2\theta)$*. (Hint:* $2\sin^2(2\theta) = 1 - \cos(4\theta)$)