MA114 Summer II 2017
Worksheet – Polar Coordinates I
7/24/17

1. Convert from rectangular to polar coordinates:

   a) $(1, \sqrt{3})$

   b) $(-1, 0)$

2. Convert from polar to rectangular coordinates:

   a) $(2, \pi/6)$

   b) $(-1, \pi/2)$

3. Sketch the graph of the polar curves:

   a) $\theta = 3\pi/4$

   b) $r = \pi$

   c) $r = \cos\theta$

   d) $r = \cos(2\theta)$

   e) $r = 1 + \cos(\theta)$

4. Find the polar equation for:

   a) $x^2 + y^2 = 9$

   b) $x = 4$

   c) $y = 4$

   d) $xy = r$

5. Find the slope dy/dx for the following polar curves:

   a) $r = 2\cos(\theta) + 1$

   b) $r = \dfrac{1}{\theta}$

6. Compute the slope of the tangent line to the graph of $r = \sin\theta$ at $\theta = \pi/3$, and sketch the curve and the tangent line.