MT-A141 Precalculus Worksheet 9.4

Group: _____ Present: _____

1. Set FORMAT to POLARGC on your calculator. With all functions turned off, choose ZDECIMAL. Use the arrow keys to see polar coordinates of points. Find the polar coordinates of the following rectangular coordinate points (remember that each pixel represents 0.1 in this window):

   $(x, y) = (1, 1); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

   $(x, y) = (0, 2); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

   $(x, y) = (-3, 2); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

   $(x, y) = (-2, -1); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

   $(x, y) = (0, -1); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

   $(x, y) = (2, -1); (r, \theta) = (\_\_\_\_, \_\_\_\_)$

2. Find complete graphs for each of the following polar equations. Trace each to find an appropriate θ range to cover the curve exactly once. (You need to set MODE to POL)

   $r = 2\cos(\theta)$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

   $r = 2\sin(\theta)$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

   $r = 2 + 2\cos(\theta)$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

   $r = 1 + 2\cos(\theta)$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

   $r = 3\sin(3\theta)$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

   $r = \sqrt{\cos(2\theta)}$, $\theta \in [0, 2\pi]$. Shape: _____; Need $\theta \in (\_\_\_\_, \_\_\_\_)$

3. Find a rectangular equation (in x and y) for the polar equation $r = 2a\cos(\theta)$. Put the resulting equation in "standard form".
   (Hint: first multiply through by r)

   Equation: _____

   This is the equation of: _____