MA 2733
Worksheet 2 – September 2, 2015

Name _____

1. Consider the curve given by the polar equation $r = 2 - \sin\theta$.

   (a) Make a rough sketch of the curve.

   (b) Set up the "inside a polar curve" integral for the upper of the two regions bounded by the curve and the x-axis.

   (c) Write the curve as a parametric equation.

(d) Set up the "under a parametric curve" integral for the upper of the two regions bounded by the curve and the x-axis.

(e) Find the area! (Evaluate one of the integrals from parts (b) and (d); whichever you prefer)

2. Calculate the limits of the following sequences:

(a) $\lim_{n\to\infty} \dfrac{2n^3 + 3n^2 + 4}{6n^3}$.

(b) $\lim_{n\to\infty} \dfrac{\sin n + \cos n}{n}$.