Math 21B: Calculus II
Fall 2016, Sections B01-B02
Homework Sheet 8
Due: Tuesday, November 29th, 2016

Submit your solutions to the following problems at the beginning of your discussion section on Tuesday, November 29th. You should present your work in a clean and organized fashion, either on a printed copy of this document or a separate sheet of paper. As stated in the syllabus, late submissions will **not** be accepted.

1. Find the center of mass of a thin, upper-half-circular plate with radius 5, centered at the origin, and with uniform density.

2. Find the center of mass in the above problem if the density is given by $\delta(x) = x^2$.

3. (a) $\displaystyle\int_1^\infty x^{-2}\ dx$

(b) $\displaystyle\int_0^1 x^{-1/2}\ dx$

(c) Graph each of the above functions on separate axes, and fill the corresponding regions of integration. How are these regions related? How can this relationship be seen in your answers above?