

Problem Set 3 Calculus 2 Due 2/13/04

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. Write an integral for the volume of a sphere with radius R and use it to show that the volume is $\frac{4}{3}\pi R^3$ [Hint: You'll probably want to warm up by doing a circle of radius 1 – treat it as a solid of revolution].

2. Write integrals for the center of mass of the first-quadrant portion of a circle with radius R with constant density [Hint: Again you might want to warm up with a circle of radius 1].