Homework 5 for M312, Section 30353
due Wednesday, October 2, 2013

1. (20 pts) Exercise 7.3.19 (p. 383).
2. (15 pts) Exercise 5.1.7 (p. 270).
3. (15 pts) Exercise 5.1.8 (p. 270).
4. (10 pts) Exercise 5.2.8 (p. 282).
5. (10 pts) Exercise 5.3.12 (p. 289).
6. (10 pts) Exercise 5.4.11 (p. 294).
7. (10 pts) Exercise 5.5.12 (p. 303).
8. (10 pts) Exercise 5.5.18 (p.303).
9. (extra credit, 20 pts) Let P denote the pyramid with vertices at $(\pm 1, \pm 1, 0)$ and $(0, 0, 1)$ and for $a > 0$ let B be the ball given by $x^2 + y^2 + (z - a)^2 \leq a^2$. By $B \setminus P$ denote the set of those points of the ball B that lie outside of the pyramid P. Find all the values of a (they form an interval) for which $B \setminus P$ consists of four disjoint parts. Find the volume of the common part $P \cap B$ for those a.