## MATH 20000: Homework 5 Due Wed Nov 11

Problems: For full credit you need to show all the work leading to your solution.

**5.3:** 4abc, 6 (the ellipse can be described as  $D = \{(x, y) \in \mathbb{R}^2 : \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1\}$ ), 11 **5.4:** 4 (sketch the regions and change the order of integration, you do not need to evaluate the integrals)

**5.5:** 8, 12, 28

**6.2:** 30, 33

**Problem 1.** Consider the region D between  $z = x^2 + y^2$  and  $z = \sqrt{x^2 + y^2}$  in  $z \le 1$ . (i) express the region D as an elementary region (in set theoretic notation) and write down an iterated integral which will compute the volume of this region. (ii) compute the volume of D, it will be useful to employ a change of variables.