

# V63.0123-1 : Calculus III. Homework 7

due Wed Mar 26 at lecture. Reasonably long.

*Always draw diagrams of  $D$ , the region in the  $xy$ -plane!*

**16.2:** (double integrals over rectangles, first three are from HW6)

2.

4.

8.

18.

28.

**16.3:** (double integrals over general regions)

7.

9. This can be done with either variable integrated first, but you will find one way much harder (you'll need tables at back of book).

12. Ditto. [Hint: start both ways, look for differentials of things, stick with the easier, non-trig-function way]

18. [Hint: is Type I or Type II is simpler to express  $D$ ?]

26. [Hint: See Example 4. First find the boundary of  $D$ , where the final plane hits  $z = 0$ . Then decide if Type I or II is simpler for  $D$ .]

**16.4:** (double integrals in polar coordinates)

1.-4. (don't worry, these are very short, totalling about one problem)

8.

16.

**16.5:** (applications of double integrals)

7.

14. [Hint: given the shape, and the form of the density, you will want to choose between Cartesian and polar coords for doing the double integrals. One of the moments you can see is zero by symmetry].