

Math 5378, Differential Geometry
Homework 11
Due in-class on **Wednesday, April 23**

Numbered exercises are from Do Carmo, *Differential Geometry of Curves and Surfaces*.

1. Section 4.4, number 15.
2. Section 4.4, number 17.
3. Section 4.4, number 21.
4. Section 4.5, number 1.
5. Section 4.5, number 3.
6. Section 4.5, number 4.
7. Find the Euler characteristic of the region

$$\{(x, y, z) \mid x^2 + y^2 + z^2 = 1, x^2 \geq 1/2\} \subset S^2.$$

8. Suppose S is a surface on which the curvature is a constant $c \neq 0$. Give a formula for the area of a simple region with geodesic sides in terms of the number of sides and the interior angles that the geodesics make with each other.