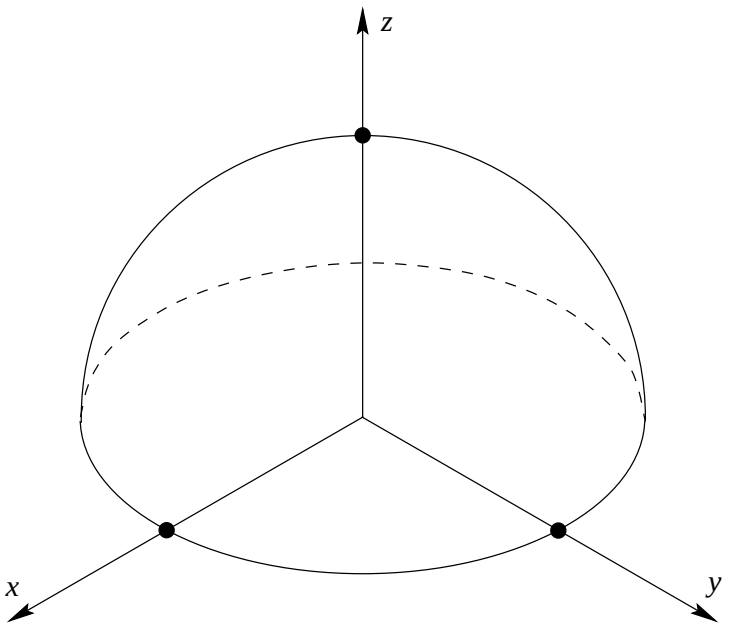
Math 324A & 324B Advanced Multivariable Calculus I **Spring 1997**

WORKSHEET #7: 5/21/97



It will help you to answer the questions below if you refer to the figure above, which represents the upper half of a sphere of radius b. For each object described below, answer the following questions:

(a) Describe the given object in words.

(b) What is the dimension of the given object?

(c) What is the boundary of the given object?

1. K is the set of points (x, y, z) such that $z \geq 0$ and $x^2 + y^2 + z^2 \leq b^2$.
2. S is the set of points (x, y, z) such that $z \geq 0$ and $x^2 + y^2 + z^2 = b^2$.
3. T is the set of points (x, y, z) such that $z = 0$ and $x^2 + y^2 \leq b^2$.
4. C is the set of points (x, y, z) such that $z = 0$ and $x^2 + y^2 = b^2$.
5. $A = \partial K$ (where K is as in problem 1).
6. $B = \partial S$ (where S is as in problem 2).
7. $D = \partial T$ (where T is as in problem 3).
8. $E = \partial C$ (where C is as in problem 4).