Calculus III *Fall 2004*
MA213:007–008 *Russell Brown*

Assignments to be graded.

1. Homework A. Due Monday 30 August 2004, Find the equation of the largest sphere that lies inside the cube whose longest diagonal has endpoints $(1, 2, 3)$ and $(5, 6, 7)$. Find the equation of the smallest sphere that contains this cube.

2. Homework B. Due Monday, 6 September 2004. page 702, §11.3, # 63.

Notebook assignments.

§11.1 3, 5, 21, 22, 23, 24, 25, 44
§11.2 5, 7, 9, 11, 13, 15, 24, 25, 27, 29, 31, 33, 36, 40
§11.3 7, 17, 23, 25, 27, 29, 37, 43, 47, 51, 52, 54, 55, 57
§11.4 1, 3, 8, 10, 11, 14, 15, 17, 19, 21, 23, 27, 29, 30
§11.5 3, 7, 11, 13, 14, 19, 23, 30, 31, 33, 29, 51, 53, 55, 57, 59.

Topics to be covered.

- §11.1. Three-dimensional coordinate systems, midpoint formula, distances and the equation of a sphere.

- §11.2. Notation for vectors, adding and subtracting vectors and the geometric interpretation.

- §11.3. The dot product. Properties and geometric interpretation, projections and components of vectors.

- §11.4. The cross product-computation and geometric interpretation, the scalar triple product and its interpretation as a volume.

- §11.5. Parametric and symmetric equations of lines in space, equation of a plane in space.

August 24, 2004