CSC 315 - HW 2
Dr. A.J. Pounds
Fall 2007
(Due 5:00 p.m., October 10, 2007)

1. Using the dot product, find the length of the following vector: (-3,4,$\sqrt{11}$)
2. What is the angle between the following vectors: (4,15,9), (3,9,-9)
3. What is a vector perpendicular to plane containing the vectors (2,3,5) and (1,1,1)?
4. What are homogenous coordinates. Why are they used in graphics programming.
5. What is the gluLookAt command? What is the default perspective of this command?
6. Derive the transformation matrices necessary to take a line segment starting at (-10,-11,-17) and ending at (-3,10,-7) collinear with the positive Z-Axis with the starting point at the origin. By explicit calculation, demonstate that your transformation matrices do exactly this.
7. Derive the transformation matrices needed to rotate a line segment starting at the point (2,2) and ending at the point (5,2) about the point (3,2) by 30 degrees and to increase its length by a factor of 1.75. Using your derived transformation matrices, what are the transformed starting and ending coordinates of the line.
8. What transformation matrix compositions are commutative?