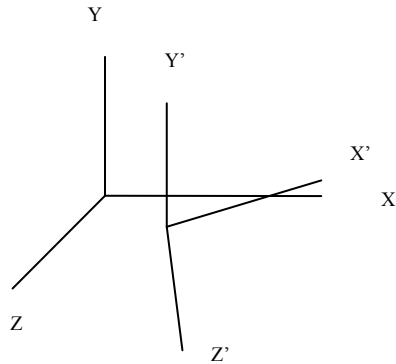


Computer Graphics Qualifying Exam
Fall 2006
(Closed book, closed notes)

1. Examine the following diagram:



The (x, y, z) system is offset from the (x', y', z') system by $(\Delta x, \Delta y, \Delta z)$. The y and y' axes are parallel. The prime system is rotated θ degrees around the y axis.

Write a matrix that will transform any point in the (x, y, z) system to a point in (x', y', z') system.

2. Write pseudocode that will generate 32 shades of pink. Use the gamma correction model not the linear model!
3. Set up the data structure(s) for the z-buffer algorithm. Write pseudocode to demonstrate the operation of that algorithm.
4. Write pseudocode for generating fractal mountains or fractal lightning.