

CMSC 435/634: Problem Set 3
Due April 16, 2012 (at beginning of class)

Consider a scene to be rendered. The view is specified by eye point \mathbf{E} at $(10,5,-10)$, the vector $\mathbf{v}=(0,1,0)$ points up, and center of attention $\mathbf{a}=(-1,-1,14)$. The view plane has extent $(-5.5, -5.5)$ to $(5.5, 5.5)$ and is divided into 11 pixels in each direction (indexed 0 to 10). The view plane is at a distance 10 from the eye point.

1. Construct the view matrix that transforms objects from world space to view space.
2. Use this matrix to transform the vertex $(-1, -1, 14)$.
3. Construct the perspective matrix that transforms a point in view space to 3D display space. Use a near plane distance of 10 and a far plane distance of 110.