CS 155
Notes on Z-Buffering

These notes summarize the fast-and-dirty approach to z-buffering. A more efficient approach will be described in class.

You should modify your polygon-fill program to do a z-buffer test before writing to the frame buffer. For example, replace

fb[i][j]=currcolor

by

if (zTest(i,j)¿=zb[i][j])

    fb[i][j]=currcolor

    zb[i][j]=zTest(i,j)

zTest(i,j) returns the z-coordinate of the the point p on the surface of the current polygon that project to (i,j,VVNEAR). In perspective mode, p is the point of intersection of the plane containing the polygon and the line passing through the points (0,0,EYE) and (i,j,VVNEAR). We can compute p using standard techniques. In orthographic mode, $p = (i, j, z)$ for $z = (D - A * i - B * j)/C$, where $Ax + By + Cz = D$ is the equation of the plane containing the current polygon.