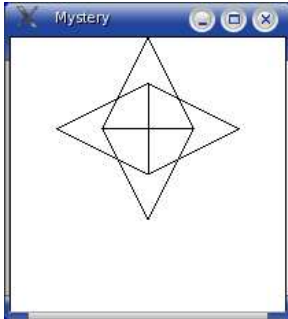


## Solutions, Quiz 1, CSci 490, Spring 2005

1. 100 pixels. [The projection of the wall onto the screen would be  $1/2$  a foot, since the distance:height ratio would be the same both for the wall (40:10) and for the projection of the wall onto the screen (2:y). This is half the height of the screen.]

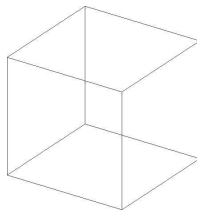
2.



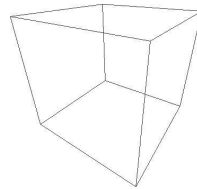
3.

$$\begin{pmatrix} 2 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 \\ 0 & 0 & 2 & 4 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

4. In an orthographic projection, all vertices are projected along parallel lines to the viewplane; in a perspective projection, all vertices are projected onto the viewplane along lines intersecting in a single point (the eye's location). The result is that a perspective projection gives a perception of depth, where a fixed line length is shorter as it recedes from the eye; whereas with an orthographic projection, a fixed line length remains the same length as it recedes.



orthographic



perspective