

Suppose a viewer is 20 units back from the picture plane, and is looking at a square 30 units beyond the picture plane. Suppose that this square is parallel to the "floor" (the  $xz$ -plane) with front and back edges parallel to the  $x$  axis (and so parallel to the picture plane) whose corners have the following coordinates:

A		(10, 15, 30)
B		(15, 15, 30)
C		(15, 15, 35)
D		(10, 15, 35)

1. Using the conventions we've developed – that the viewer's eye is located on the negative side of the  $z$ -axis – what are the coordinates for the location of the viewer's eye?
2. Use the Perspective Theorem to find the perspective images of each of the corners.
3. Use your results to draw the exact perspective image of this square on a piece of graph paper (that is, plot your results on a regular 2-dimensional set of axes.)
4. Figure out roughly how far off the page 20 units is. Close one eye, and put the other eye opposite the origin 20 units away. Does your graph look like a square?