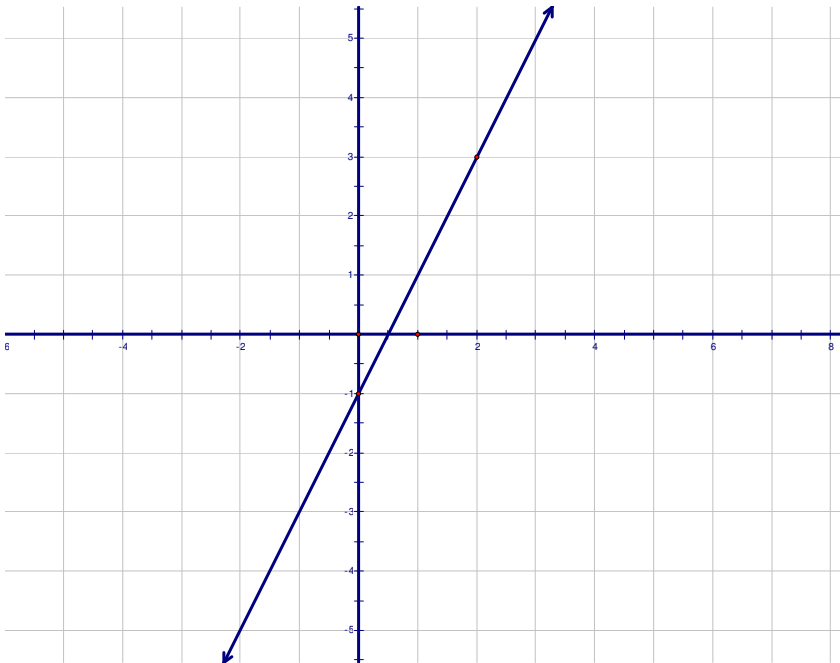Specify a matrix for the transformation T_1 that is a translation through (2, 1) followed by a reflection in the y-axis.

Describe, in words, T_1^{-1} the inverse of the transformation described above.

Specify a matrix for T_1^{-1}.

Find the image of the line [2 -1 -1] $\begin{bmatrix} x \\ y \\ 1 \end{bmatrix} = 0$ under T_1.

Show that distance is preserved under T_1.

Show that area is preserved under T_1.