49 If the point (1, 1) rotates 45° clockwise, it will be located on the positive x–axis a distance of $\sqrt{1^2+1^2}=\sqrt{2}$ from the origin and located at $(\sqrt{2}, 0)$. This agrees with the matrix product AX.

$$AX=\begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} & 0 \\ -\frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} & 0 \\ 0 & 0 & 1 \end{bmatrix}\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}=\begin{bmatrix} \sqrt{2} \\ 0 \\ 1 \end{bmatrix}$$