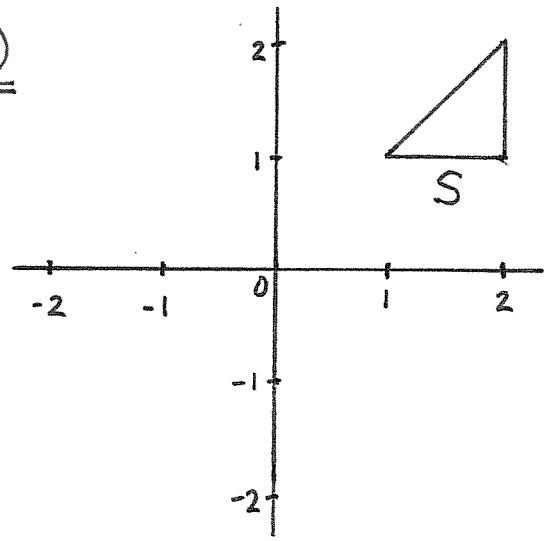
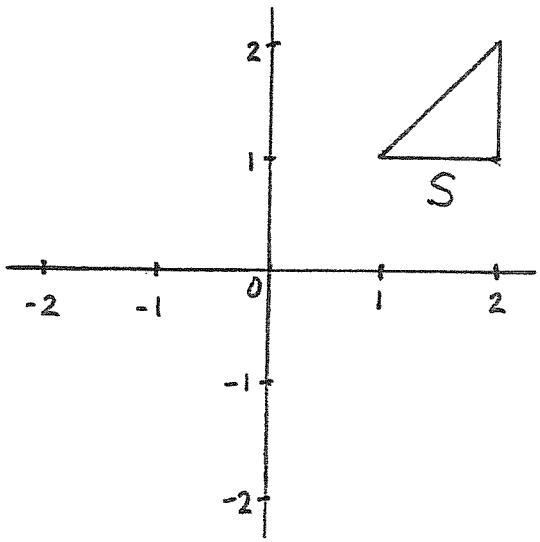
$A_{(-1,-2)} : \mathbb{R}^2 \to \mathbb{R}^2$, $A_{(-1,-2)}(x,y) = (x-1, y-2)$

points in S	points in $A_{(-1,-2)}(S)$
$(1,1)$	$A_{(-1,-2)}(1,1)$
$(2,1)$	$A_{(-1,-2)}(2,1)$
$(2,2)$	$A_{(-1,-2)}(2,2)$



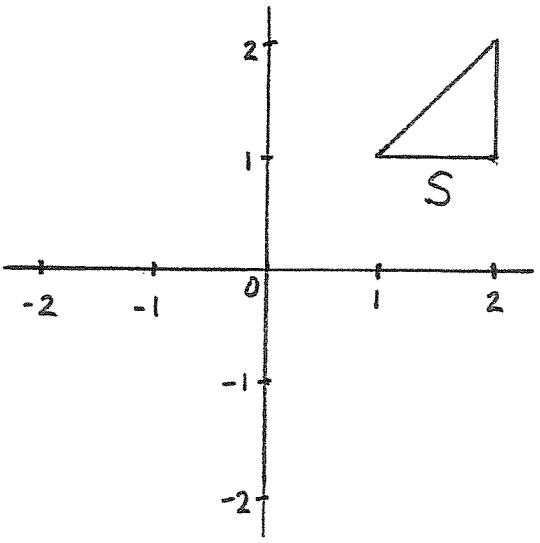
$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix} : \mathbb{R}^2 \to \mathbb{R}^2$

points in S	points in $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}(S)$
$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$	$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 1 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 1 \end{pmatrix}$	$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 2 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 2 \end{pmatrix}$	$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 2 \\ 2 \end{pmatrix}$



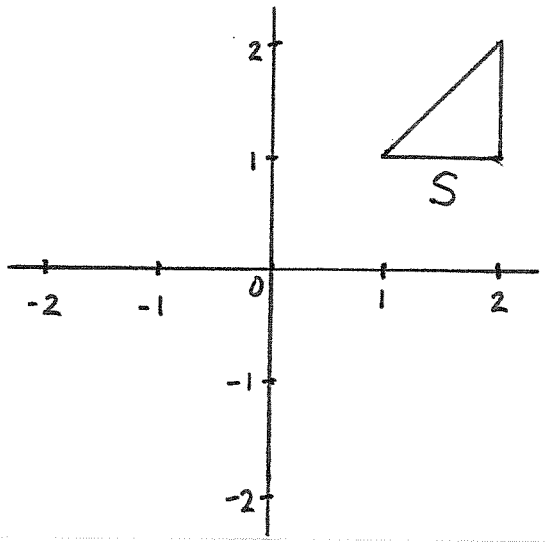
$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} : \mathbb{R}^2 \to \mathbb{R}^2$

points in S	points in $\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}(S)$
$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} 1 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} 2 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 2 \end{pmatrix}$	$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} 2 \\ 2 \end{pmatrix}$



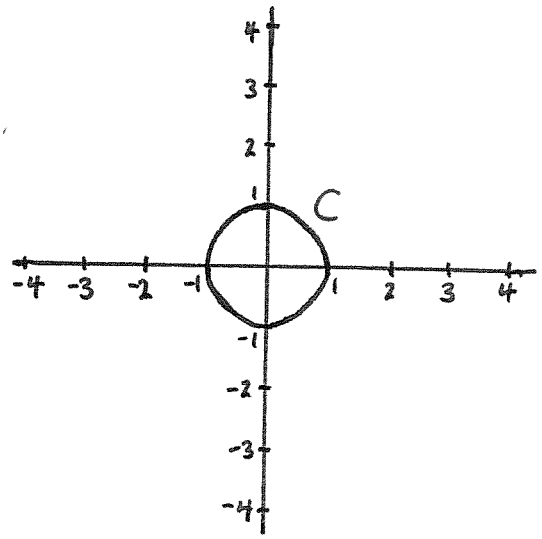
$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} : \mathbb{R}^2 \longrightarrow \mathbb{R}^2$

points in S	points in $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}(S)$
$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 1 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 2 \\ 1 \end{pmatrix}$
$\begin{pmatrix} 2 \\ 2 \end{pmatrix}$	$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 2 \\ 2 \end{pmatrix}$



$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix} : \mathbb{R}^2 \longrightarrow \mathbb{R}^2$

points in C	points in $\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}(C)$
$\begin{pmatrix} 1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}\begin{pmatrix} 1 \\ 0 \end{pmatrix}$
$\begin{pmatrix} 0 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}\begin{pmatrix} 0 \\ 1 \end{pmatrix}$
$\begin{pmatrix} -1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}\begin{pmatrix} -1 \\ 0 \end{pmatrix}$
$\begin{pmatrix} 0 \\ -1 \end{pmatrix}$	$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}\begin{pmatrix} 0 \\ -1 \end{pmatrix}$



$\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix} : \mathbb{R}^2 \longrightarrow \mathbb{R}^2$

points in C	points in $\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix}(C)$
$\begin{pmatrix} 1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix}\begin{pmatrix} 1 \\ 0 \end{pmatrix}$
$\begin{pmatrix} 0 \\ 1 \end{pmatrix}$	$\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix}\begin{pmatrix} 0 \\ 1 \end{pmatrix}$
$\begin{pmatrix} -1 \\ 0 \end{pmatrix}$	$\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix}\begin{pmatrix} -1 \\ 0 \end{pmatrix}$
$\begin{pmatrix} 0 \\ -1 \end{pmatrix}$	$\begin{pmatrix} 4 & 0 \\ 0 & \frac{1}{2} \end{pmatrix}\begin{pmatrix} 0 \\ -1 \end{pmatrix}$