Sort It Out — Reflection Matrices

Sort each statement into the correct group.

1	The linear transformation is $\begin{pmatrix} x \\ y \end{pmatrix} \mapsto \begin{pmatrix} y \\ x \end{pmatrix}$	**2**	The transformation matrix is $\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$
3	The line of invariant points is $x = 0$	**4**	The linear transformation is $\begin{pmatrix} x \\ y \end{pmatrix} \mapsto \begin{pmatrix} -y \\ -x \end{pmatrix}$
5	The transformation matrix is $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$	**6**	The point $(2, 3)$ maps to the point $(-2, 3)$
7	The point $(2, 3)$ maps to the point $(-3, -2)$	**8**	The linear transformation is $\begin{pmatrix} x \\ y \end{pmatrix} \mapsto \begin{pmatrix} -x \\ y \end{pmatrix}$
9	The line of invariant points is $y = -x$	**10**	The transformation matrix is $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$
11	The point $(2, 3)$ maps to the point $(2, -3)$	**12**	The line of invariant points is $y = 0$
13	The transformation matrix is $\begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$	**14**	The line of invariant points is $y = x$
15	The linear transformation is $\begin{pmatrix} x \\ y \end{pmatrix} \mapsto \begin{pmatrix} x \\ -y \end{pmatrix}$	**16**	The point $(2, 3)$ maps to the point $(3, 2)$

A	Reflection in the y-axis	**B**	Reflection in the x-axis
3, 6, 8, 10		**2, 11, 12, 15**	
C	Reflection in the line $y = x$	**D**	Reflection in the line $y = -x$
1, 5, 14, 16		**4, 7, 9, 13**	