

**Source:**

## Thought Processes

- As geometric transformations
- As algebraic transformations

## Examples

$\begin{pmatrix} x & 0 \\ 0 & y \end{pmatrix}$  | Scale by  $x$  and  $y$   $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$  | Rotate -90deg (easier to visualize geometrically, also two reflections (over  $y = x$  and  $y = 0$ ))  $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$  | Add  $y$  to  $x$  (easier to visualize algebraically, also a shear)

## Related

- [KBe2020math530retPracticeMultiplyMatrixIdentifyGroups](#)
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