

일차변환과 영역  $a_{22}$   
(Linear Transformation and Domain  $a_{22}$ )

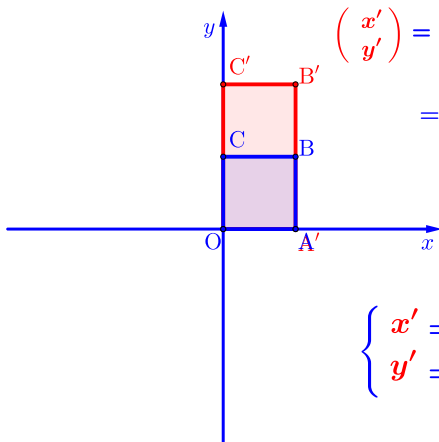
# Linear Transformation and Domain $a_{22}$

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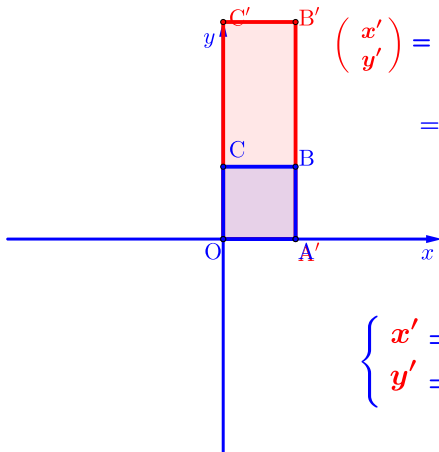


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (2 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (2 \times y) \end{cases}$$

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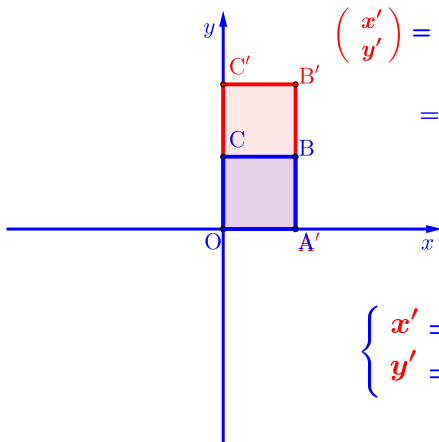


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 3 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (3 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (3 \times y) \end{cases}$$

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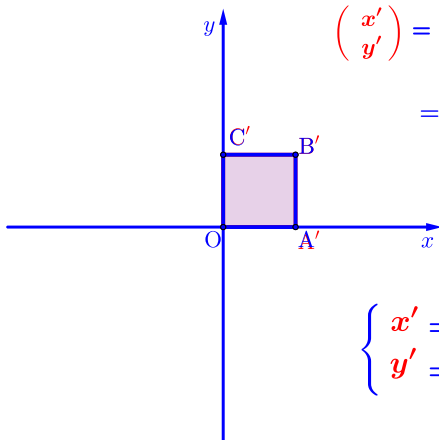


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (2 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (2 \times y) \end{cases}$$

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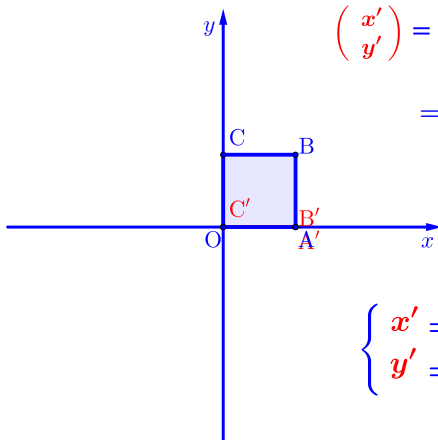


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (1 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (1 \times y) \end{cases}$$

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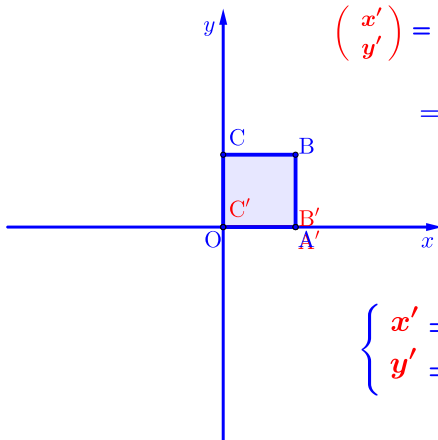


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (0 \times y) \end{pmatrix} \end{aligned}$$

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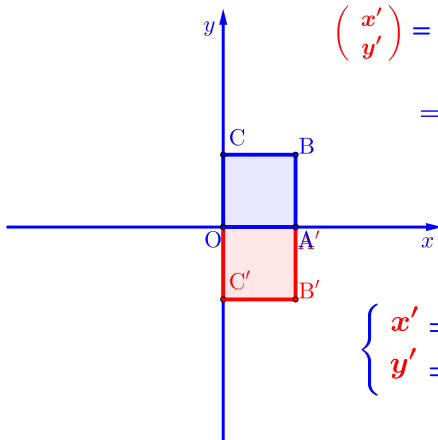
$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (0 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (0 \times y) \end{cases}$$



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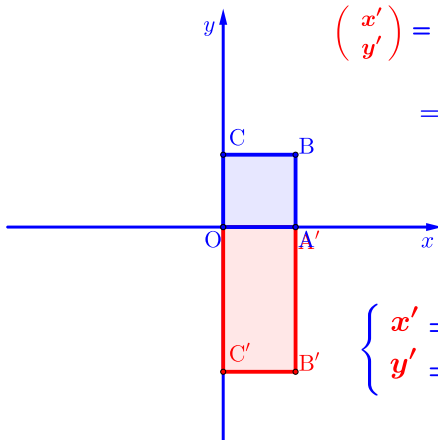


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (-1 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (-1 \times y) \end{cases}$$

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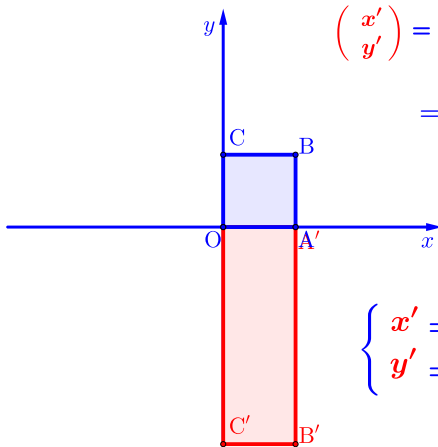


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & -2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (-2 \times y) \end{pmatrix} \end{aligned}$$

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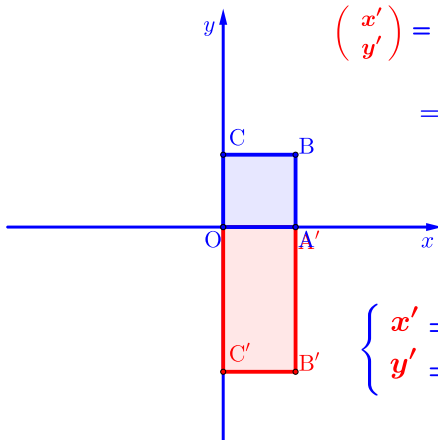


$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & -3 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (-3 \times y) \end{pmatrix} \end{aligned}$$

$$\begin{cases} x' = (1 \times x) + (0 \times y) \\ y' = (0 \times x) + (-3 \times y) \end{cases}$$

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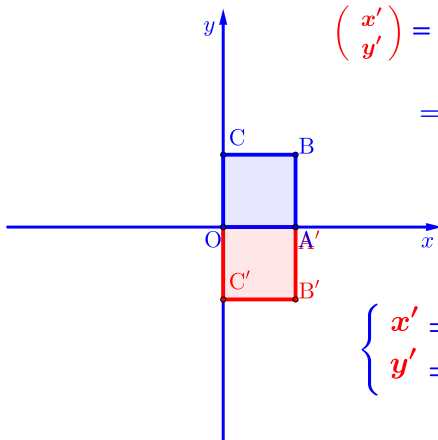


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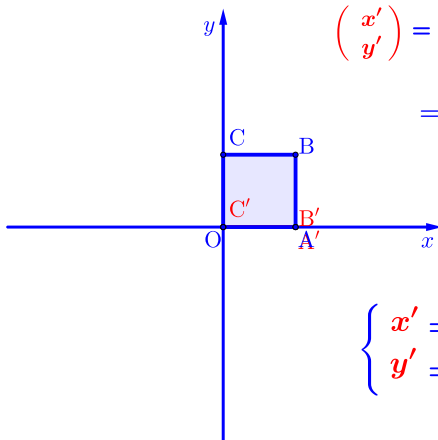


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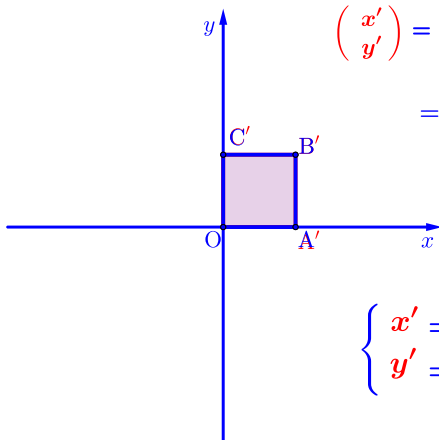


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▶ End



$$\begin{aligned} \begin{pmatrix} x' \\ y' \end{pmatrix} &= \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} \\ &= \begin{pmatrix} (1 \times x) + (0 \times y) \\ (0 \times x) + (1 \times y) \end{pmatrix} \end{aligned}$$

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Github:

<https://min7014.github.io/math20230411001.html>

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and you can see a picture moving.