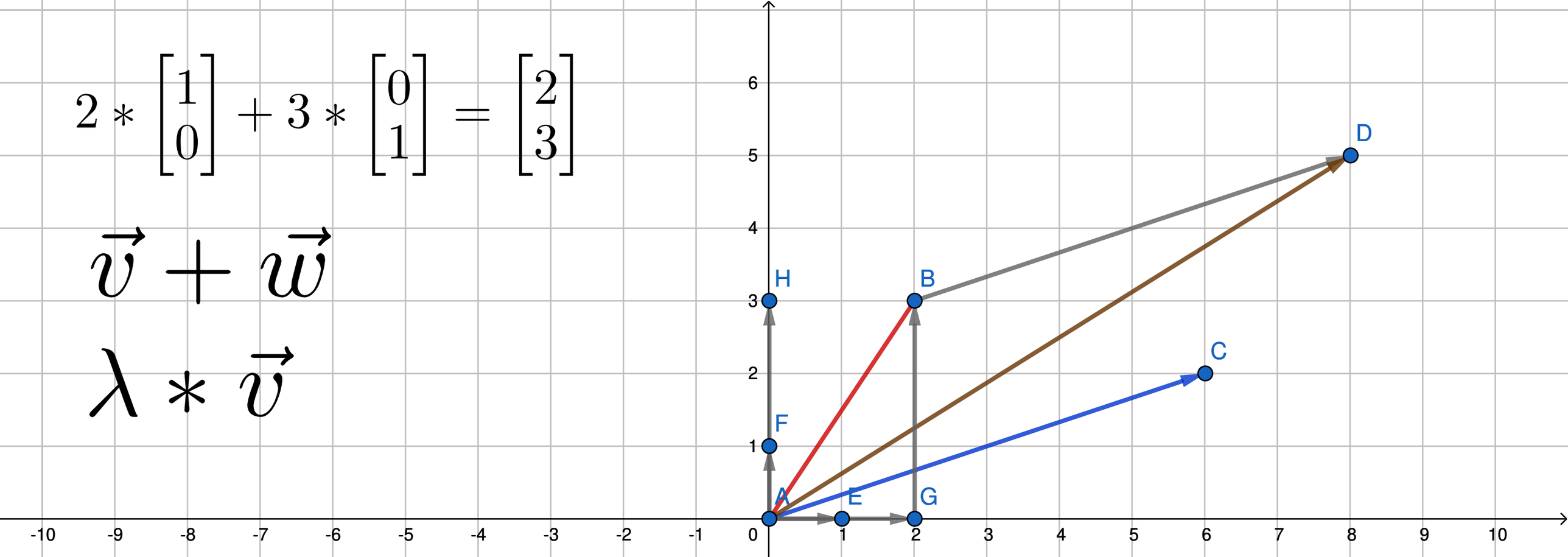
$$2 * \begin{bmatrix} 1 \\ 0 \end{bmatrix} + 3 * \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$\vec{v} + \vec{w}$$

$$\lambda * \vec{v}$$



$$\begin{bmatrix} x_1 \\ y_1 \end{bmatrix} + \begin{bmatrix} x_2 \\ y_2 \end{bmatrix} = \begin{bmatrix} x_1 + x_2 \\ y_1 + y_2 \end{bmatrix}$$

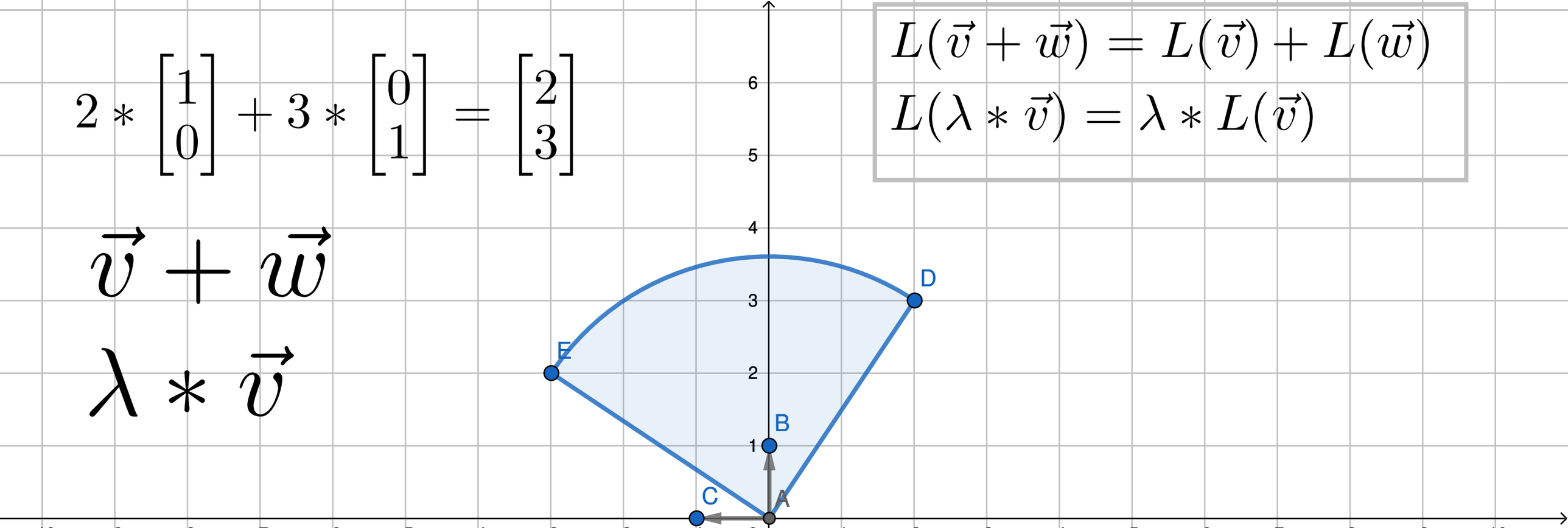
$$2 * \begin{bmatrix} 1 \\ 0 \end{bmatrix} + 3 * \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$\vec{v} + \vec{w}$$

$$\lambda * \vec{v}$$

$$L(\vec{v} + \vec{w}) = L(\vec{v}) + L(\vec{w})$$

$$L(\lambda * \vec{v}) = \lambda * L(\vec{v})$$



$$\begin{bmatrix} x_1 \\ y_1 \end{bmatrix} + \begin{bmatrix} x_2 \\ y_2 \end{bmatrix} = \begin{bmatrix} x_1 + x_2 \\ y_1 + y_2 \end{bmatrix}$$

$$2 * \begin{bmatrix} 1 \\ 0 \end{bmatrix} + 3 * \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

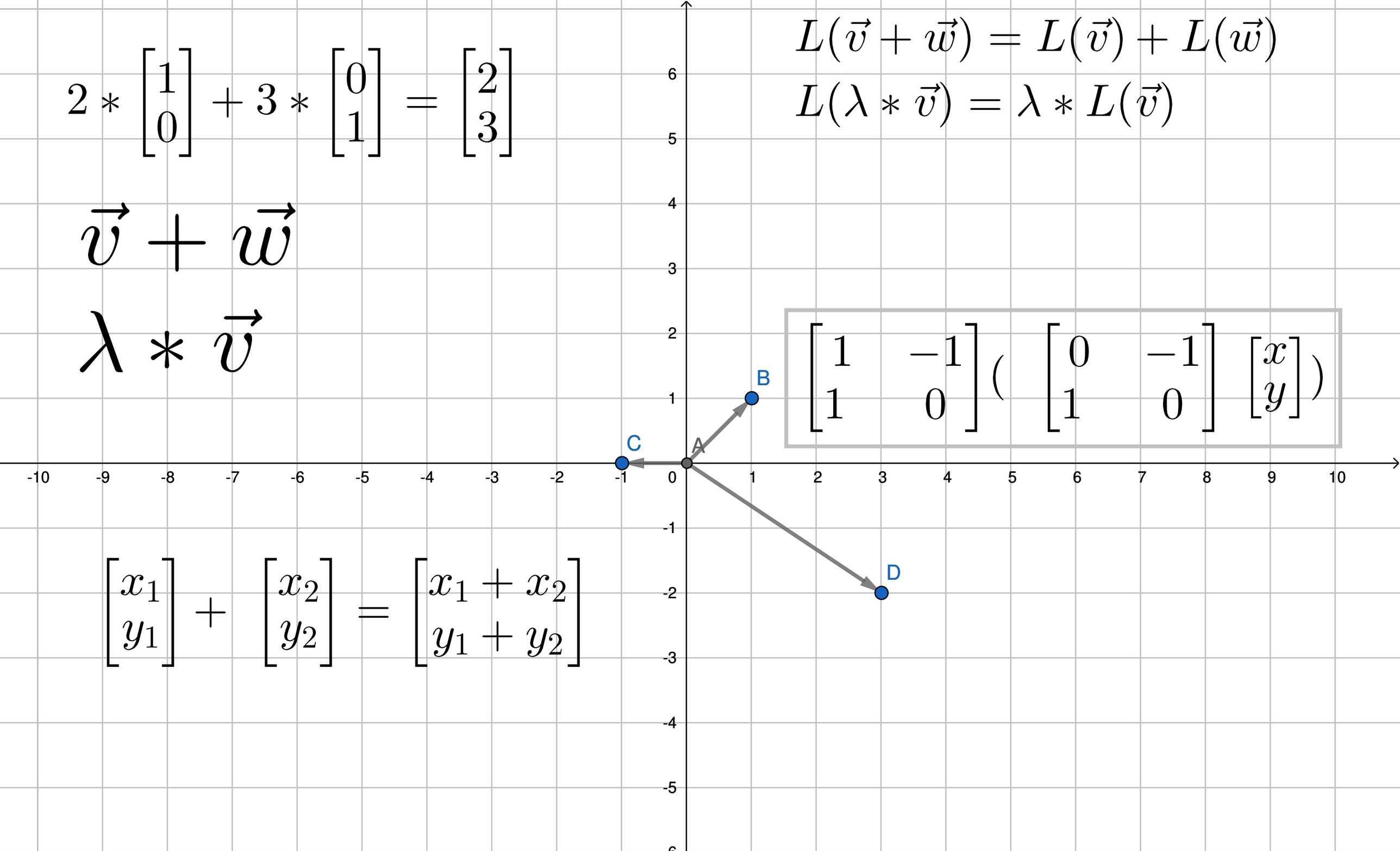
$$\vec{v} + \vec{w}$$

$$\lambda * \vec{v}$$

$$L(\vec{v} + \vec{w}) = L(\vec{v}) + L(\vec{w})$$

$$L(\lambda * \vec{v}) = \lambda * L(\vec{v})$$

$$\begin{bmatrix} 1 & -1 \\ 1 & 0 \end{bmatrix} \left(\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} \right)$$



$$\begin{bmatrix} x_1 \\ y_1 \end{bmatrix} + \begin{bmatrix} x_2 \\ y_2 \end{bmatrix} = \begin{bmatrix} x_1 + x_2 \\ y_1 + y_2 \end{bmatrix}$$

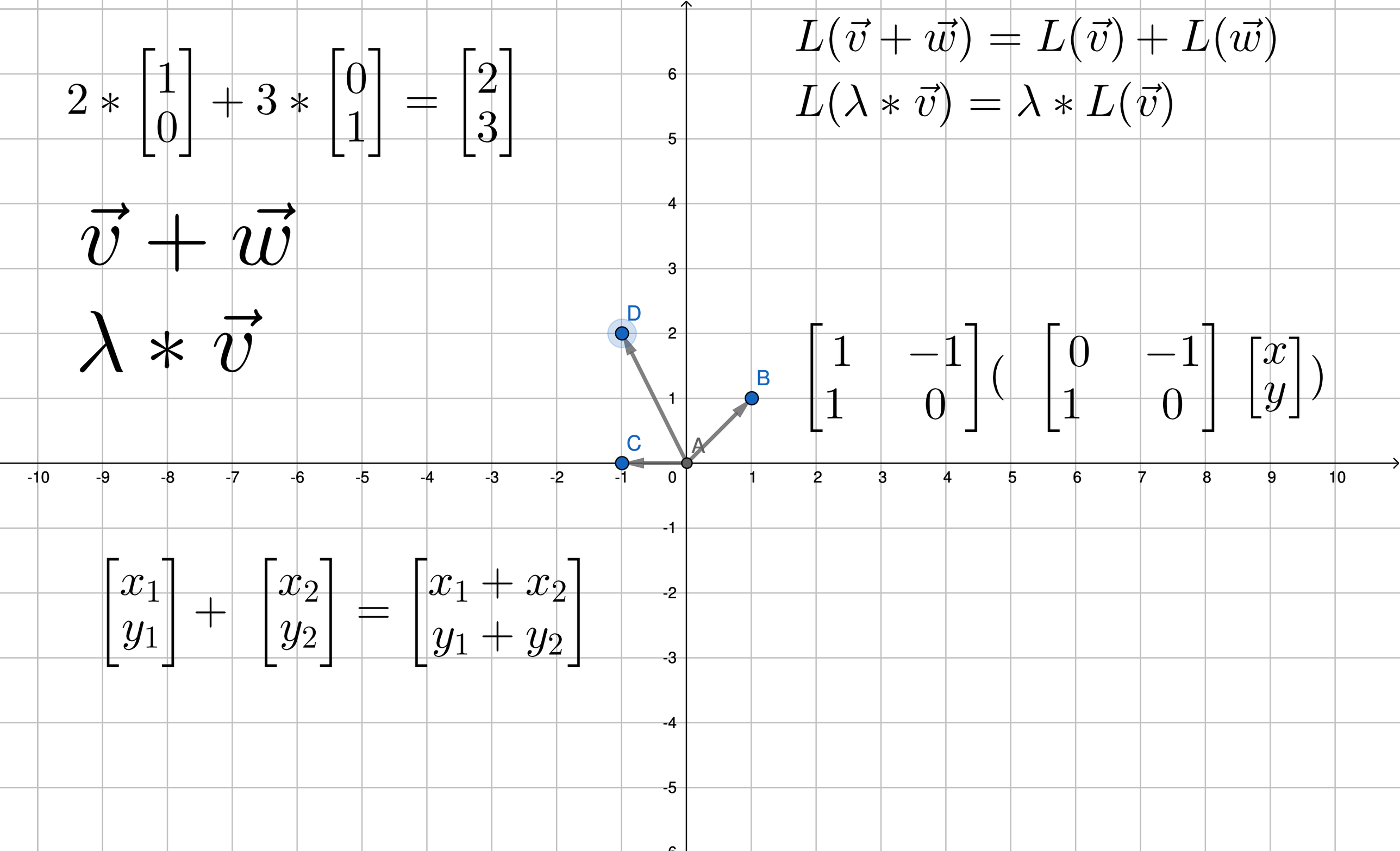
$$2 * \begin{bmatrix} 1 \\ 0 \end{bmatrix} + 3 * \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$\vec{v} + \vec{w}$$

$$\lambda * \vec{v}$$

$$L(\vec{v} + \vec{w}) = L(\vec{v}) + L(\vec{w})$$

$$L(\lambda * \vec{v}) = \lambda * L(\vec{v})$$



$$\begin{bmatrix} 1 & -1 \\ 1 & 0 \end{bmatrix} \left(\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} \right)$$

$$\begin{bmatrix} x_1 \\ y_1 \end{bmatrix} + \begin{bmatrix} x_2 \\ y_2 \end{bmatrix} = \begin{bmatrix} x_1 + x_2 \\ y_1 + y_2 \end{bmatrix}$$

$$(a + b)(c + d) - ac - bd - 2cb = ad - bc$$