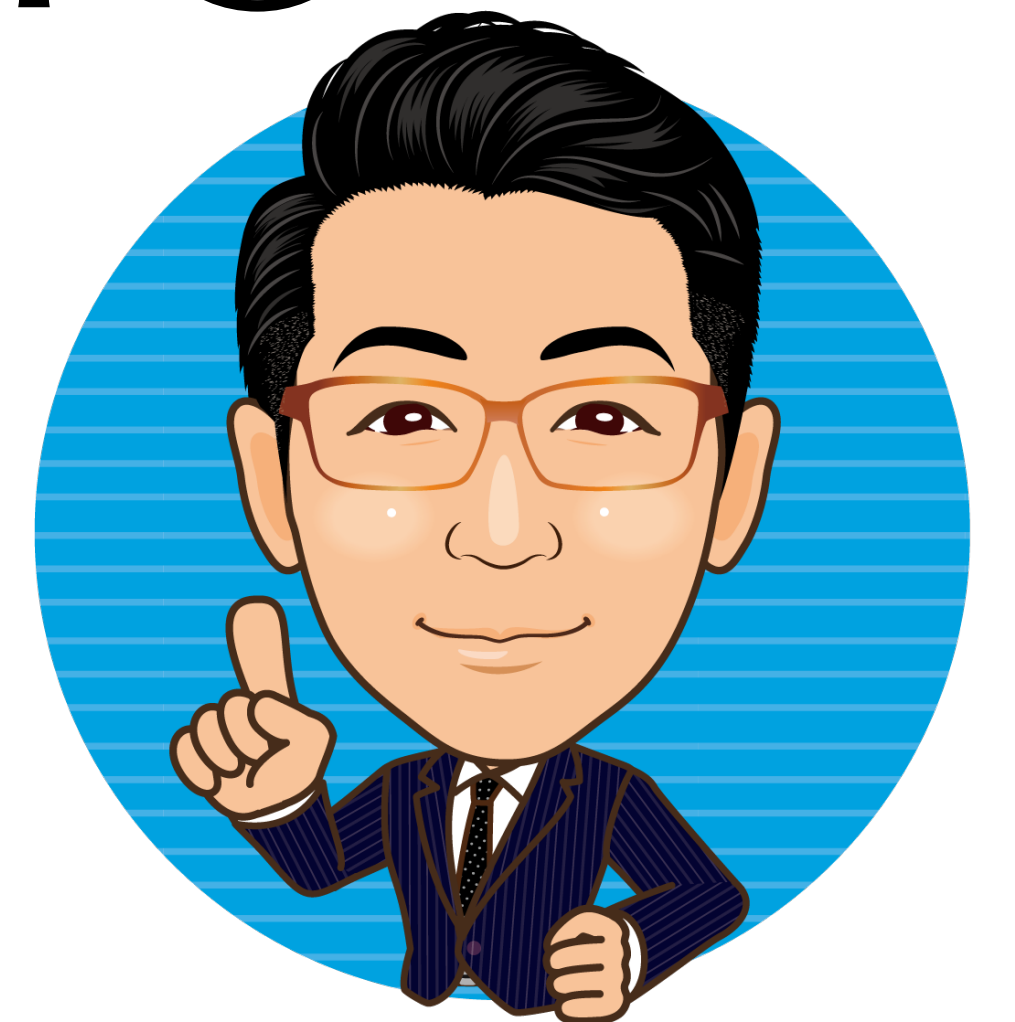


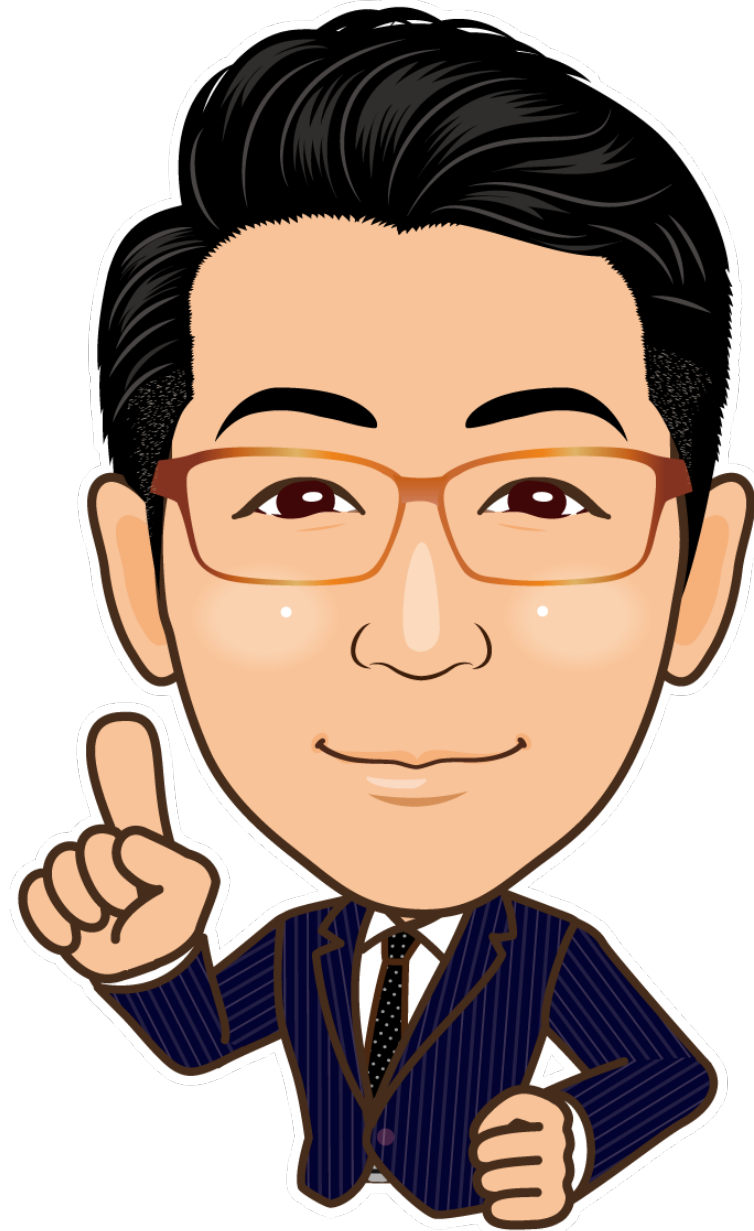
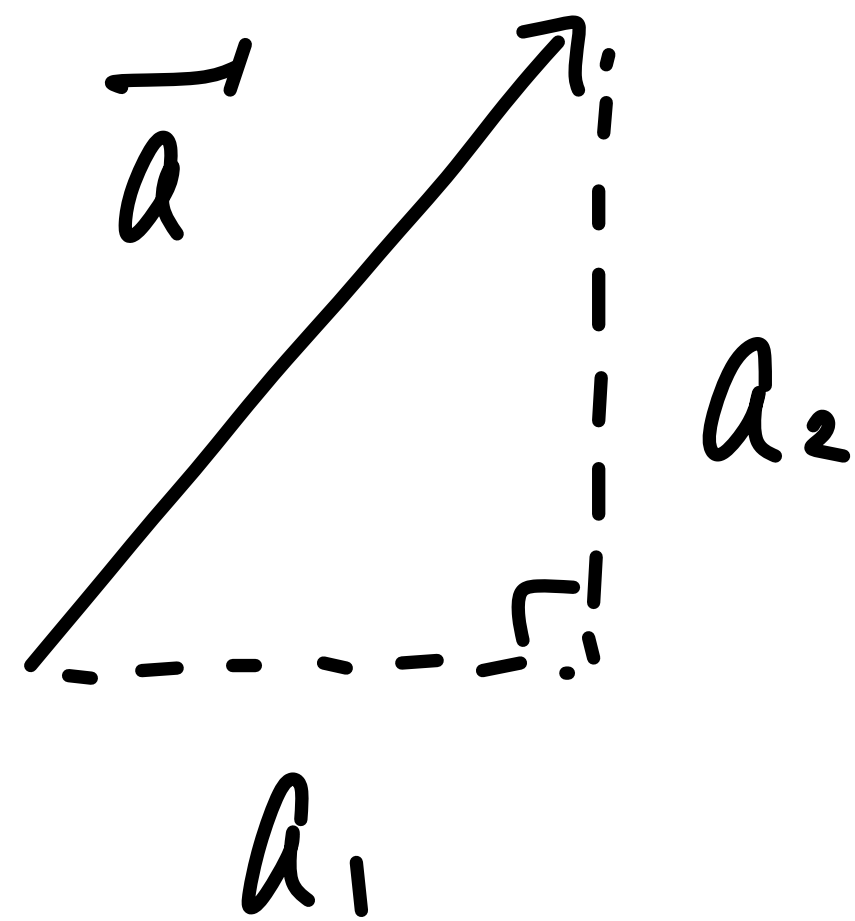


# 数学B

## 第1章 平面上のベクトル ベクトルの成分表示と計算①



# ○ベクトルの成分表示と計算①



$$\vec{a} = (a_1, a_2)$$

$$\vec{a} = \begin{pmatrix} a_1 \\ a_2 \end{pmatrix}$$

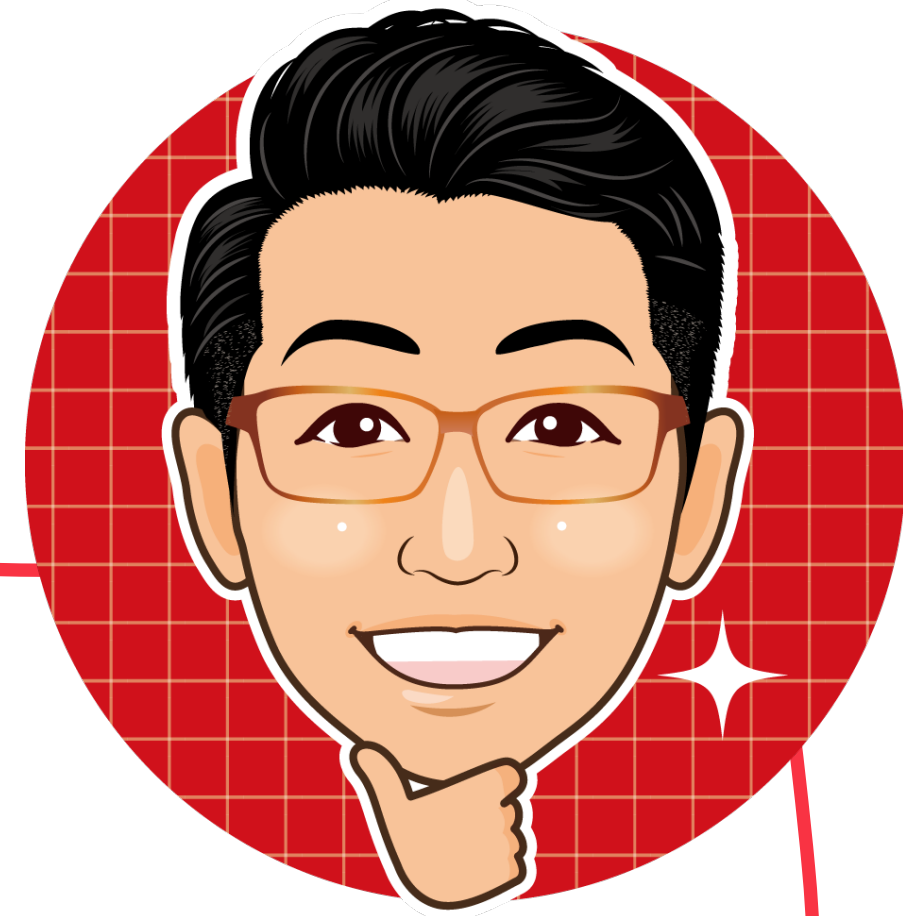
$$|\vec{a}| = \sqrt{a_1^2 + a_2^2}$$

<性質>

$$\vec{a} = \begin{pmatrix} a_1 \\ a_2 \end{pmatrix}, \quad \vec{b} = \begin{pmatrix} b_1 \\ b_2 \end{pmatrix}$$

$$\vec{a} + \vec{b} = \begin{pmatrix} a_1 + b_1 \\ a_2 + b_2 \end{pmatrix}, \quad k\vec{a} = \begin{pmatrix} ka_1 \\ ka_2 \end{pmatrix}$$

$k$ は定数

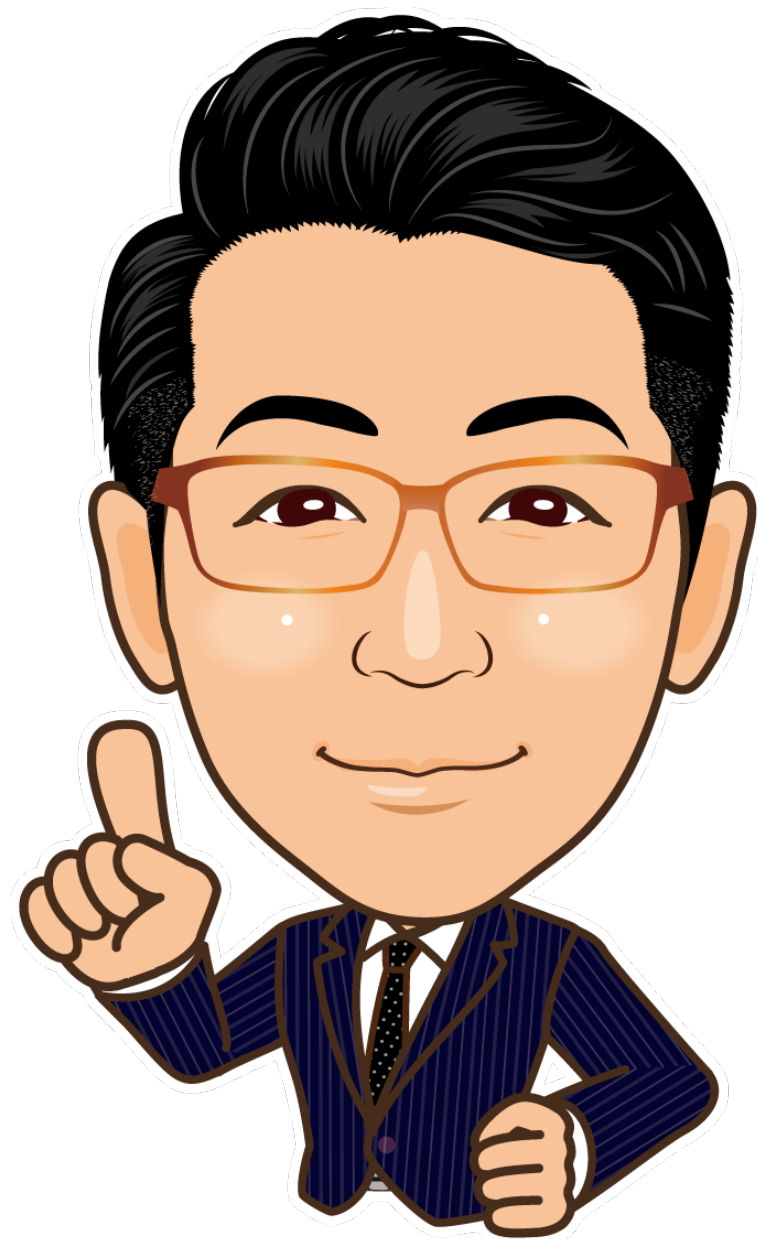


2点  $A(a_1, a_2)$ ,  $B(b_1, b_2)$

原点  $O(0, 0)$

$$\vec{OA} = \begin{pmatrix} a_1 \\ a_2 \end{pmatrix}, \quad \vec{OB} = \begin{pmatrix} b_1 \\ b_2 \end{pmatrix}$$

$$\begin{aligned} \vec{AB} &= \vec{OB} - \vec{OA} \\ &= \begin{pmatrix} b_1 - a_1 \\ b_2 - a_2 \end{pmatrix} \end{aligned}$$



(例)  $\vec{a} = \begin{pmatrix} 1 \\ 5 \end{pmatrix}, \quad \vec{b} = \begin{pmatrix} 3 \\ -4 \end{pmatrix}$

$$2\vec{a} + 3\vec{b} = 2 \begin{pmatrix} 1 \\ 5 \end{pmatrix} + 3 \begin{pmatrix} 3 \\ -4 \end{pmatrix}$$

$$= \begin{pmatrix} 2 \\ 10 \end{pmatrix} + \begin{pmatrix} 9 \\ -12 \end{pmatrix}$$

$$= \begin{pmatrix} 11 \\ -2 \end{pmatrix}$$

$$2\vec{a} + 3\vec{b} = \begin{pmatrix} 11 \\ -2 \end{pmatrix}$$

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