

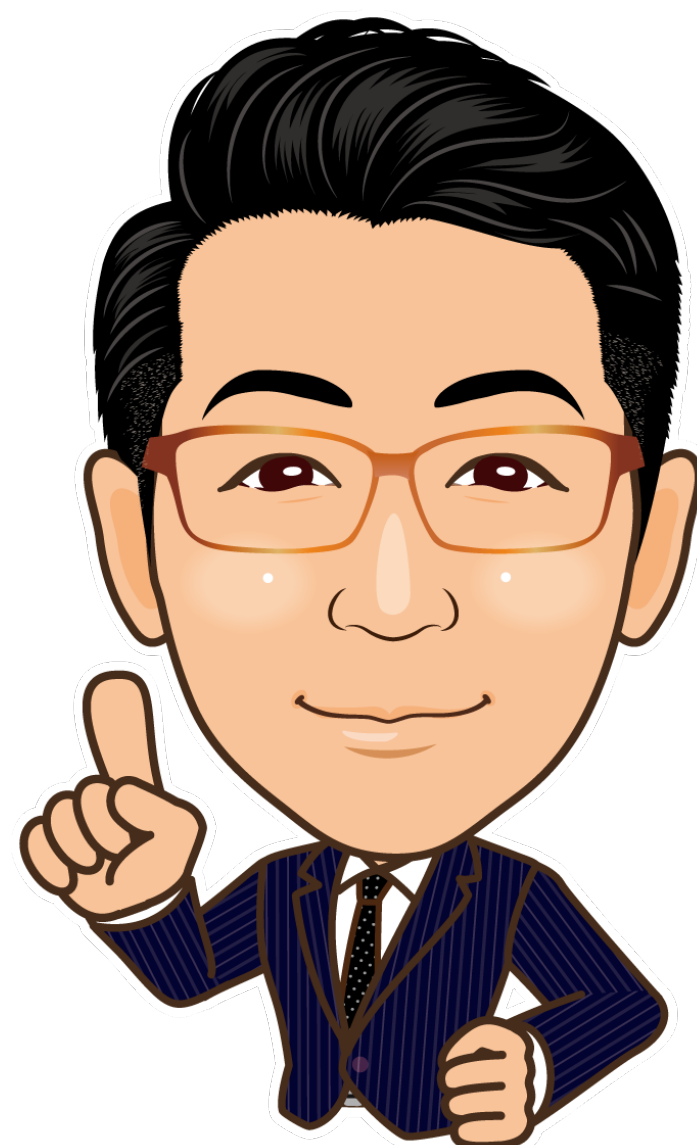
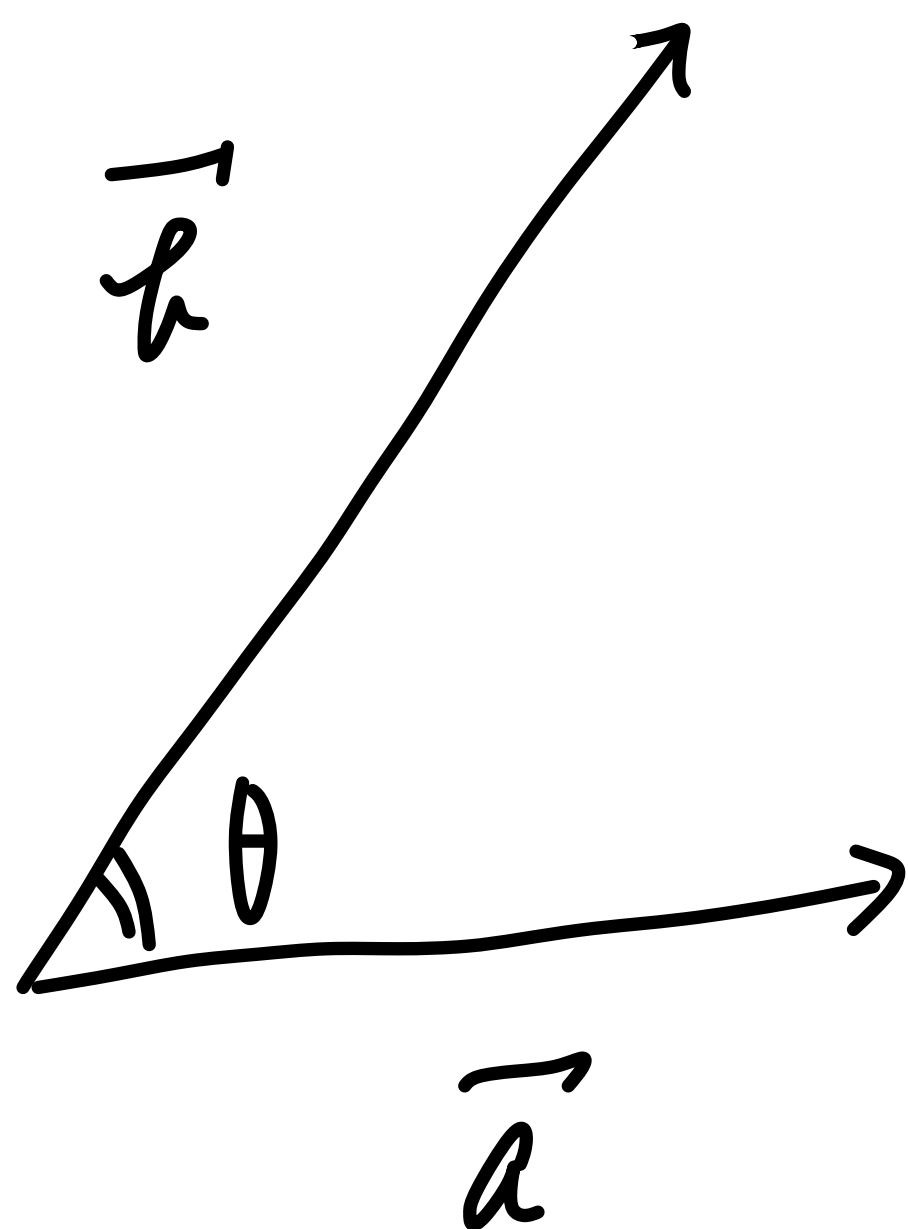
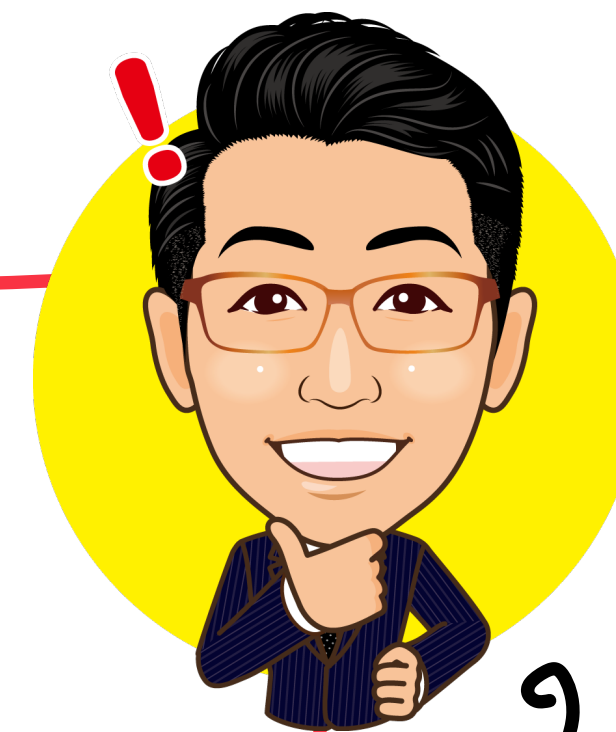
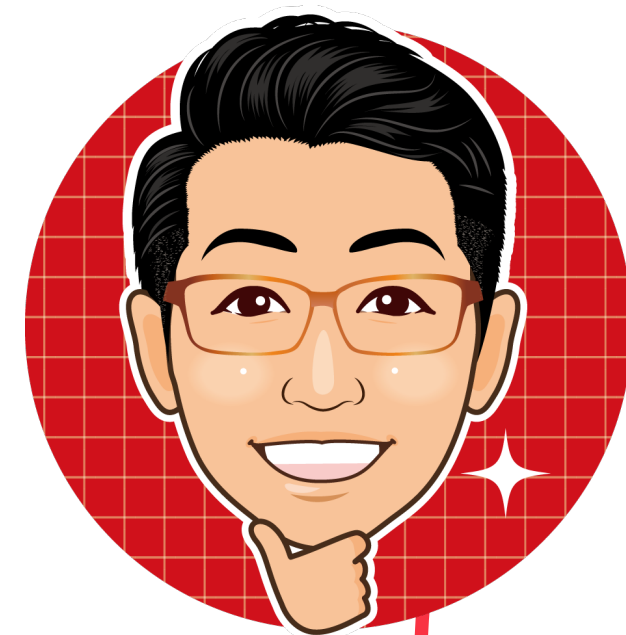


数学B

第1章 平面上のベクトル ベクトルの内積①



○ベクトルの内積①



\vec{a} と \vec{b} の 成す角 θ
($0^\circ \leq \theta \leq 180^\circ$)

$$\vec{a} \cdot \vec{b} = |\vec{a}| \times |\vec{b}| \cos \theta$$

$$\vec{a} \cdot \vec{b} = a_1 \times b_1 + a_2 \times b_2$$

$\vec{a} \cdot \vec{b}$ \vec{a} と \vec{b} の 内積

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

$$2 \times 3 = 6$$

$$2 \cdot 3 = 6$$

$$\vec{a} \cdot \vec{b}$$

≠

$$\vec{a} \times \vec{b}$$

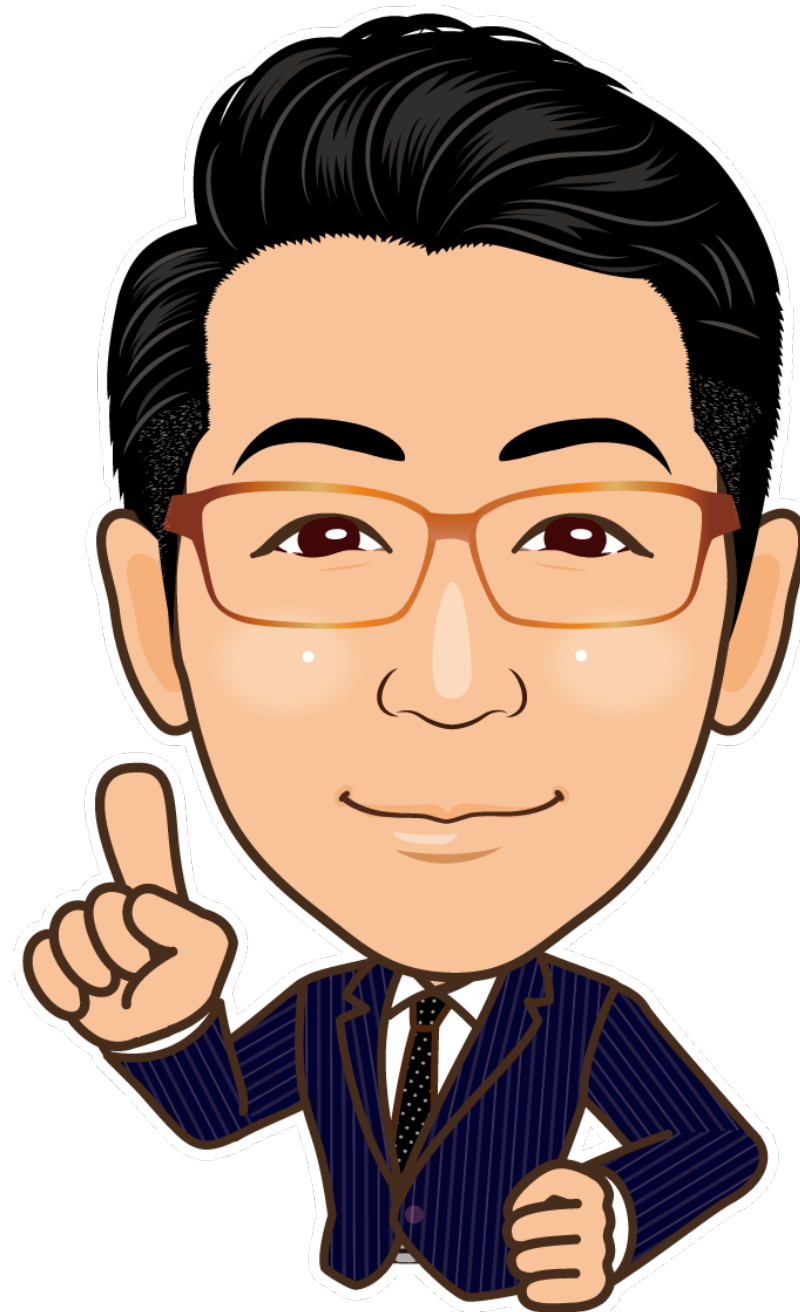
(外積)

(ex)

$$|\vec{a}| = 3, \quad |\vec{b}| = 2, \quad \theta = 60^\circ$$

$$\vec{a} \cdot \vec{b} = 3 \times 2 \times \cos 60^\circ$$

$$= \underline{\underline{3}}$$



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

$$\vec{a} \cdot \vec{b} = 1 \times (-2) + 4 \times 3$$

$$= -2 + 12 = \underline{\underline{10}}$$