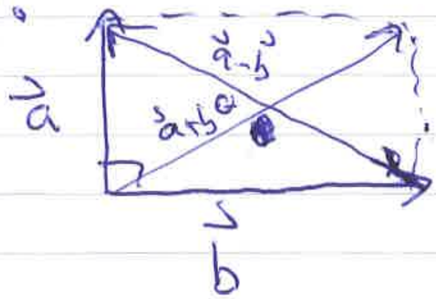
7.



Let θ be angle between diagonals.

Each diagonal is either $\vec{a}+\vec{b}$ or $\vec{a}-\vec{b}$.

Since it is a rectangle, diagonals are equal in length. $\therefore |\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$

$$(\vec{a}+\vec{b})\cdot(\vec{a}-\vec{b}) = |\vec{a}+\vec{b}||\vec{a}-\vec{b}|\cos\theta$$

$$(\vec{a}+\vec{b})\cdot(\vec{a}-\vec{b}) = |\vec{a}+\vec{b}|^2\cos\theta$$ since $|\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$

$$|\vec{a}|^2\, 4 - \vec{a}\cdot\vec{b} + \vec{a}\cdot\vec{b} - |\vec{b}|^2 = |\vec{a}+\vec{b})^2\cos\theta$$

$$|\vec{a}|^2 - |\vec{b}|^2 = |\vec{a}+\vec{b}|^2 \cos t$$

$$\cos\theta = \frac{|\vec{a}|^2 - |\vec{b}|^2}{|\vec{a}+\vec{b}|^2}$$

but using pythagorean theorem:

$$|\vec{a}+\vec{b}|^2 = |\vec{a}|^2 + |\vec{b}|^2.$$

$$\therefore \cos\theta = \frac{|\vec{a}|^2 - |\vec{b}|^2}{|\vec{a}|^2 + |\vec{b}|^2}$$

whether $|\vec{a}| > |\vec{b}|$ or $|\vec{a}| < |\vec{b}|$ changes whether you get obtuse or acute angle of intersection.