

Mathematics 21a Fall 2006
In class problems. Sep. 28

1. Let $A = (-1, -1, -1)$, $B = (1, 0, 0)$, $C = (0, 1, 0)$, $D = (0, 0, 1)$ be four points in \mathbb{R}^3 . Calculate the following quantities:

- (1) Angle between the vectors \vec{AD} and \vec{BC} .
- (2) Cross product $\vec{v} = \vec{AD} \times \vec{BC}$.
- (3) Orthogonal projection $\mathbf{P}_{\vec{v}}\vec{AB}$.

What is the geometric meaning of the number $|\mathbf{P}_{\vec{v}}\vec{AB}|$?

2. What is $\vec{i} \times \vec{j} \times \vec{k}$?