

Question 1. Let $A = (0, -2, 4)$, $B = (5, -5, 3)$, and $P = (k, k, k)$.

- a. (4 marks) Find k when the vector from A to B is perpendicular to the vector from A to P .
- b. (4 marks) Find a vector of length 3 oppositely directed to \vec{AB} .

Question 2.(4 marks) Let $\|\vec{u}\| = 3$, \vec{v} be a unit vector, and the angle between \vec{u} and \vec{v} be 60 degrees. Find $\|5\vec{u} - 7\vec{v}\|$