

國立虎尾科技大學九十七學年度第一學期平時考(一)試題

班級:四電二乙 科目:工程數學(二) 時間:2008/9/25(星期四) 18:30-19:30

1. Please find a vector  $\vec{b}$  that is parallel to  $\vec{a} = 3 - j4$  and has the indicated magnitude  $\|\vec{b}\| = 2$ .
2. Solve for the unknown  $x$  if, the distance between  $P_1(x, x, 1)$  and  $P_2(0, 3, 5)$  is  $d(P_1, P_2) = 5$ .
3. Find a vector  $\vec{v} = \langle x, y, 1 \rangle$  that is orthogonal to both  $\vec{a} = \langle 3, 1, -1 \rangle$  and  $\vec{b} = \langle -3, 2, 2 \rangle$ .
4. Verify that the vector  $\vec{c} = \vec{b} - \frac{\vec{a} \cdot \vec{b}}{\|\vec{a}\|^2} \vec{a}$  is orthogonal to the vector  $\vec{a}$ .