King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #2 Term 172 *Dr. A. Khalfallah*

Name: ID:

Q1. Find the area of the parallelogram whose vertices are given by A=(1,0,-1), B=(1,7,2), C=(2,4,-1),D=(0,3,2)

Q2 . Find a formula for the area of the triangle in the xy-plane with vertices at (0,0), (a_1, a_2) and (b_1, b_2)

Q3 Let $\vec{a}$ and $\vec{b}$ be two vectors such that $\vec{a}.\vec{b} = 4$. If $\vec{u} = \text{proj}_{\vec{b}}\vec{a}$. Find $\vec{v} = (2\vec{a} + \vec{u}).\vec{b}$

Q4 Let $\vec{a} =< 1,2,-1 >$ and $\vec{b} =< 0,3,-2 >$. Find $\tan\theta$, where θ is the angle between $\vec{a}$ and $\vec{b}$

Q5 Let $\vec{v} =< 0,1,-1 >$ and $\vec{w} =< -1,0,1 >$. Find a point $P = (x, y, z)$ in the plane $z = 2$ satisfying the following conditions: $\overrightarrow{OP}$ and $\vec{v} + \vec{w}$ are perpendicular and the volume of the parallepiped determined by $\overrightarrow{OP}$, $\vec{v}$ and $\vec{w}$ is equal to 3.