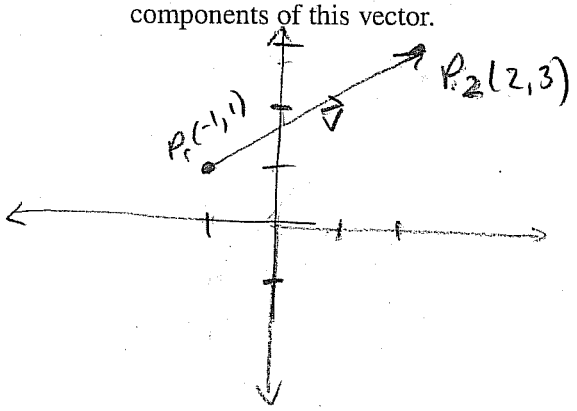
March 25, 2009

Name: SOLUTIONS

Student ID: _____

Quiz 7

Question 1. *(2 marks)* Graph the vector between the initial point $P_1(-1,1)$ and $P_2(2,3)$. Find the components of this vector.



$\vec{v} = (2-(-1),\ 3-1)$

$= (3,2)$

Question 2. *(6 marks)* Let $\vec{v} = (0,-1,5)$, $\vec{u} = (1,1,-2)$, and $\vec{w} = (2,-2,3)$. Find:

(a) $2\vec{v}+3\vec{w}$. $= 2(0,-1,5) + 3(2,-2,3)$

$= (0,-2,10) + (6,-6,9)$

$= (6,-8,19)$

(b) $-2(\vec{u}-6\vec{w})$ $= -2\left((1,1,-2) - 6(2,-2,3)\right)$

$= -2\left((1,1,-2) - (12,-12,18)\right)$

$= -2(-11,13,-20) = (22,-26,40)$

(c) $||\vec{u}+\vec{v}-2\vec{w}||$

$= ||(1,1,-2) + (0,-1,5) - 2(2,-2,3)|| = ||(-3,4,-3)||$

$= \sqrt{(-3)^2+(4)^2+(-3)^2} = \sqrt{34}$

Question 3. *(2 marks)* The vector with components $\vec{v} = (1,0,-3)$ has initial point $P_1(5,1,-2)$. Find the terminal point P_2.

LET $P_2 = (x,y,z)$ THEN $(x-5,\ 1-y,\ z-(-2)) = (1,0,-3)$

$\therefore\ x-5 = 1 \Rightarrow x = 6$

$1-y = 0 \Rightarrow y = 1$

$z+2 = -3 \Rightarrow z = -5$

$\therefore\ P_2 = (6,1,-5)$