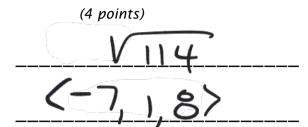
Quiz 2

Be sure to show work clearly.

(1) Given the points P(9, 3, 4) and Q(1,4,7)



- a). Find the distance between P and Q.
- b) Find the vector \overrightarrow{PQ}
- (2) Given the vectors $\mathbf{a}=\left<-5,1,2\right>$ and $\mathbf{b}=\left<-1,0,4\right>$, find
 - a) the angle between **a** and **b**(Note: In this class, exact answers should always be given unless otherwise stated; that is don't use your calculator to get an approximation)

b) $\overline{\mathbf{a} \times \mathbf{b}}$

$$\begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ -5 & 1 & 2 \\ -1 & 0 & 4 \end{vmatrix} = \langle 4, 18, 1 \rangle$$

. .

(10 points)

Check your answer by showing it is orthogonal to both a and b

<4,18,1> - <-5,1,2> = 0

b, so these should be zero, I suggest doing this on all your cross products

c) $proj_a \mathbf{b}$

 $\left(-\frac{13}{6}, \frac{13}{30}, \frac{13}{15}\right)$

projection on à 1s a multiple of à

d) a unit vector in the direction of **b**