Class Discussion

Unit 6 Topic 3 Part 1 Planar Vectors

Objective: Understand vectors, its definitions and forms

Define: vector

A mathematical object that has both **magnitude** and **direction**.

Ex1:Given $P(2,5)$ and $Q(4,-1)$

(1) define vector $\overrightarrow{PQ}$ and graph the vector on the x-y coordinates

(2) write the component form of $\overrightarrow{PQ}$

Ex2: Let $\vec{a}=<-1,2>, \vec{b}=<3,1>$, graph $\vec{a}+\vec{b}$ and $\vec{a}-\vec{b}$

Ex3: Let $\vec{i}=<1,0>, \vec{j}=<0,1>$ and $\vec{w}=<3,-2>$, if $\vec{w}=x\vec{i}+y\vec{j}$,find x and y

Ex4: Find x and y if $\vec{u}=<-1,2>, \vec{v}=<3,1>, \vec{w}=<2,-5>$ and $\vec{w}=x\vec{u}+y\vec{v}$

Ex5: continue from Ex3...Find x_1 and y_1 if $\vec{w}=x_1\vec{i}_1+y_1\vec{j}_1$ where $\vec{i}_1$ and $\vec{j}_1$ are the images of transformation of $\vec{i}$ and $\vec{j}$ after they rotate CCW 30° about the origin?