Please upload your solution to Problem 3 to canvas for marking after the workshop.

Problem 1

Write an expression for a displacement vector $\underline{\mathbf{r}}$ which is in the x, y plane, has length 1.9 cm, and is at an angle $71°$ from the x-axis.

Problem 2

Vector $\underline{\alpha}$, which is directed along an x-axis, is to be added to vector $\underline{\beta}$, which has a magnitude of 7 m. The sum is a third vector that is directed along the y-axis, with a magnitude that is 3 times that of $\underline{\alpha}$. What is that magnitude of $\underline{\alpha}$?

Problem 3

A vector product $\underline{\mathbf{P}} = a\underline{\mathbf{B}} \times \underline{\mathbf{C}}$, where $a = 2$, $\underline{\mathbf{B}} = 2\hat{\boldsymbol{i}} + 4\hat{\boldsymbol{j}} + 6\hat{\boldsymbol{k}}$ and $\underline{\mathbf{C}} = 4\hat{\boldsymbol{i}} - 20\hat{\boldsymbol{j}} + 12\hat{\boldsymbol{k}}$.

What is $\underline{\mathbf{P}}$ in unit vector notation ?