EE2802: Assignment1

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1 PROBLEM1

Find the coordinates of the point which divides the line segment joining the points $\begin{pmatrix} -2 \\ 3 \\ 5 \end{pmatrix}$ and $\begin{pmatrix} 1 \\ -4 \\ 6 \end{pmatrix}$ in the ratio

1) 2:3 internally
2) 2:3 externally

2 PROBLEM2

Given that P=$\begin{pmatrix} 3 \\ 2 \\ -4 \end{pmatrix}$, Q = $\begin{pmatrix} 5 \\ 4 \\ -6 \end{pmatrix}$ and R = $\begin{pmatrix} 9 \\ 8 \\ -10 \end{pmatrix}$ are collinear. Find the ratio in which Q divides PR.

3 PROBLEM3

Find the ratio in which the YZ-plane divides the line segment formed by joining the points $\begin{pmatrix} -2 \\ 4 \\ 7 \end{pmatrix}$ and $\begin{pmatrix} 3 \\ -5 \\ 8 \end{pmatrix}$.

4 PROBLEM4

Using section formula, show that the points A $\begin{pmatrix} 2 \\ -3 \\ 4 \end{pmatrix}$, B $\begin{pmatrix} -1 \\ 2 \\ 1 \end{pmatrix}$ and R $\begin{pmatrix} 0 \\ \frac{1}{3} \\ 2 \end{pmatrix}$ are collinear.

5 PROBLEM5

Find the coordinates of the points which trisect the line segment joining the points P $\begin{pmatrix} 4 \\ 2 \\ -6 \end{pmatrix}$ and Q $\begin{pmatrix} 10 \\ -16 \\ 4 \end{pmatrix}$.