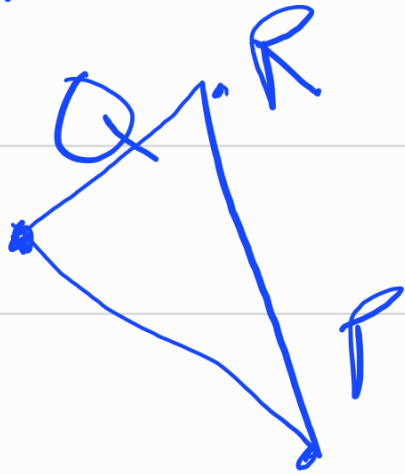


$$P(1, 3, 2) \quad Q(3, -1, 6) \\ R(5, 2, 0)$$



$$\therefore \vec{PQ} \times \vec{PR} = n$$

$$\begin{aligned} \hookrightarrow \vec{PQ} &= Q - P \\ &= \begin{bmatrix} 3 & -1 \\ -1 & -3 \\ 6 & -2 \end{bmatrix} \\ &= \begin{bmatrix} 2 \\ -4 \\ 4 \end{bmatrix} \end{aligned}$$

$$\hookrightarrow \vec{PR} = R - P$$

$$= \begin{bmatrix} 5 - 1 \\ 2 - 3 \\ 0 - 2 \end{bmatrix}$$

$$= \begin{bmatrix} 4 \\ -1 \\ -2 \end{bmatrix}$$

$$\therefore n \cdot \begin{bmatrix} 2 \\ -4 \\ 4 \end{bmatrix} \times \begin{bmatrix} 4 \\ -1 \\ -2 \end{bmatrix}$$

$$= \begin{bmatrix} -4 \times -2 - 4 \times -1 \\ 4 \times 4 - 2 \times -2 \\ 2 \times -1 - -4 \times 4 \end{bmatrix}$$

$$= \begin{bmatrix} 8 + 4 \\ 16 + 4 \\ -2 + 16 \end{bmatrix}$$

$$= \begin{bmatrix} 12 \\ 20 \\ 14 \end{bmatrix}$$

∴ Plane equation ↴

$$0 = n_x(x - p_x) + n_y(y - p_y) + n_z(z - p_z)$$

$$12(x - 1) + 20(y - 3) + 14(z - 2) = 0$$

$$12x - 12 + 20y - 60 + 14z - 28 = 0$$

$$12x + 20y + 14z - 100 = 0$$

$$12x + 20y + 14z = 100$$

$$6x + 10y + 7z = 50$$