

$$P_1 P_2 \times P_1 P_3 = \begin{vmatrix} i & j & k \\ -1 & 1 & 0 \\ 0 & 1 & -1 \end{vmatrix} = i \begin{vmatrix} 1 & 0 \\ 1 & -1 \end{vmatrix} - j \begin{vmatrix} -1 & 0 \\ 0 & -1 \end{vmatrix} + k \begin{vmatrix} -1 & 1 \\ 0 & 1 \end{vmatrix}$$

$$= -i - j - k \Rightarrow |N| = \sqrt{3}$$

$$\Rightarrow \text{Equation } N \cdot \vec{P_1 P} = 0 \Rightarrow x + y + z = 2$$