

Consider the following:

$$A = \begin{pmatrix} 2 \\ 1 \\ 0 \end{pmatrix} \quad \text{Definition of A} \quad (1)$$

$$B = \begin{pmatrix} -1 \\ 1 \\ 2 \end{pmatrix} \quad \text{Definition of B} \quad (2)$$

$$C = \begin{pmatrix} 0 \\ -1 \\ 5 \end{pmatrix} \quad \text{Definition of C} \quad (3)$$

$$\Rightarrow \overline{AB} = \begin{pmatrix} -3 \\ 0 \\ 2 \end{pmatrix} \quad \text{Subtraction of } A \text{ from } B \quad (4)$$

$$\Rightarrow \overline{AC} = \begin{pmatrix} -2 \\ -2 \\ 5 \end{pmatrix} \quad \text{Subtraction of } A \text{ from } C \quad (5)$$

Since the plane is well-defined by two linearly independent vectors, the plane  $(P) = m\overline{AB} + n\overline{AC} \forall (m, n \in \mathbb{Z})$  is parallel to  $(ABC)$ .

Therefore,

$$(ABC) = A + m\overline{AB} + n\overline{AC} \forall (m, n \in \mathbb{Z}) \quad (6)$$

$$= \begin{pmatrix} 2 \\ 1 \\ 0 \end{pmatrix} + m \begin{pmatrix} -3 \\ 0 \\ 2 \end{pmatrix} + n \begin{pmatrix} -2 \\ -2 \\ 5 \end{pmatrix} \quad (7)$$