1.1.6-21

EE24BTECH11028 - Jadhav Rajesh

Question: Show that points A$(a, b+c)$, B$(b, c+a)$, C$(c, a+b)$ are collinear.

Solution: The matrix

$$\begin{pmatrix} B-A & C-A \end{pmatrix}^T = \begin{pmatrix} b-a & a-b \\ c-a & a-c \end{pmatrix} \tag{0.1}$$

$$C_1 \to C_1 + C_2 \begin{pmatrix} 0 & a-b \\ 0 & a-c \end{pmatrix} \tag{0.2}$$

Which has rank 1.Using rank$A$ =rankA^T , we conclude that the given points are collinear.

Define the coordinates of point A, B,, and C

$$a, b, c = 1, 2, 3 \tag{0.3}$$

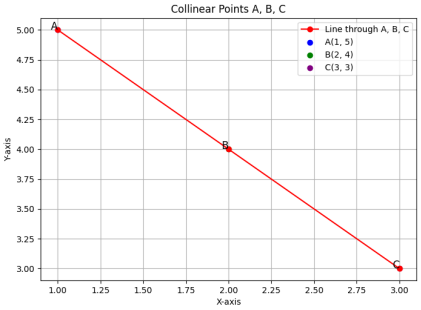

Fig. 0.1: **ABC**Collinear points