Assignment 1

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Download all python codes from

https://github.com/Chandragirisaiteja/assignment−1

and latex-tikz codes from

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1 QUESTION 1

Find a relation between x and y if the points $\begin{pmatrix} x \\ y \end{pmatrix}$; $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$ and $\begin{pmatrix} 7 \\ 0 \end{pmatrix}$ are collinear

2 SOLUTION

Let

$$\mathbf{A} = \begin{pmatrix} x \\ y \end{pmatrix} \tag{2.0.1}$$

$$\mathbf{B} = \begin{pmatrix} 1 \\ 2 \end{pmatrix} \tag{2.0.2}$$

$$\mathbf{C} = \begin{pmatrix} 7 \\ 0 \end{pmatrix} \tag{2.0.3}$$

Given **A**, **B** and **C** are collinear , then for some real number k

$$\left(\mathbf{A} - \mathbf{C}\right) = k\left(\mathbf{B} - \mathbf{C}\right) \tag{2.0.4}$$

$$\begin{pmatrix} x-7 \\ y \end{pmatrix} = \begin{pmatrix} -6k \\ 2k \end{pmatrix} \tag{2.0.5}$$

$$x - 7 = -6k \text{ and } y = 2k \tag{2.0.6}$$

$$x - 7 = -3y \tag{2.0.7}$$

$$\implies x + 3y = 7 \tag{2.0.8}$$