1.9.9

EE25BTECH11020 - Darsh Pankaj Gajare

Question:
Find the distance between the points $\mathbf{A}\left(-\frac{7}{3},5\right)$ and $\mathbf{B}\left(\frac{2}{3},5\right)$.
Solution:

Points	vector
A	$\begin{pmatrix}-\frac{7}{3}\\5\end{pmatrix}$
B	$\begin{pmatrix}\frac{2}{3}\\5\end{pmatrix}$

TABLE I: Given Data

$$\because \mathbf{A}-\mathbf{B}=\begin{pmatrix}-\frac{7}{3}\\5\end{pmatrix}-\begin{pmatrix}\frac{2}{3}\\5\end{pmatrix}=\begin{pmatrix}-3\\0\end{pmatrix}, \tag{1}$$

$$(\mathbf{A}-\mathbf{B})^{T}(\mathbf{A}-\mathbf{B})=9 \tag{2}$$

Thus, the desired distance is

$$d=\|\mathbf{A}-\mathbf{B}\|=3 \tag{3}$$