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:**

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

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

Thus, the desired distance is

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