1.5.8

EE25BTECH11020 - Darsh Pankaj Gajare

August 25, 2025

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:**

Table: Given Data

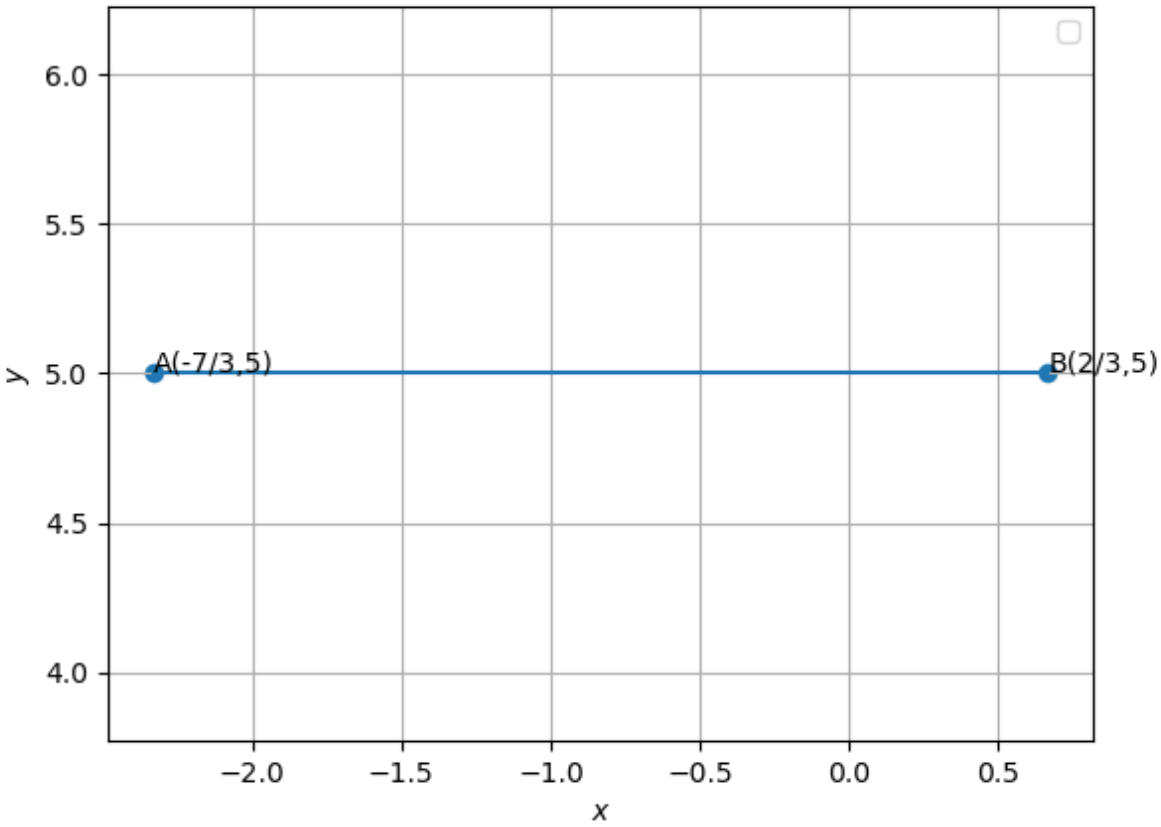
Points	vector
A	$\begin{pmatrix} -\frac{7}{3} \\ 5 \end{pmatrix}$
B	$\begin{pmatrix} \frac{2}{3} \\ 5 \end{pmatrix}$

$$\because \mathbf{A}-\mathbf{B}=\begin{pmatrix} -\frac{7}{3} \\ 5 \end{pmatrix}-\begin{pmatrix} \frac{2}{3} \\ 5 \end{pmatrix}=\begin{pmatrix} -3 \\ 0 \end{pmatrix}, \tag{0.1}$$

$$(\mathbf{A}-\mathbf{B})^{T}(\mathbf{A}-\mathbf{B})=9 \tag{0.2}$$

Thus, the desired distance is

$$d=\|\mathbf{A}-\mathbf{B}\|=3 \tag{0.3}$$


6.0
5.5
5.0
4.5
4.0
y
A(-7/3,5)
B(2/3,5)
−2.0
−1.5
−1.0
−0.5
0.0
0.5
x