EE24BTECH11008 - Aslin Garvasis

Question:

Find the distance between the points (a, b) and (-a, -b)

Solution:

Variable	Description
$\mathbf{A}(a,b) = (8,9)$	coordinates of first point
$\mathbf{B}(-a, -b) = (-8, -9)$	coordinates of second point
d	distance between A and B

TABLE 0: Input parameters

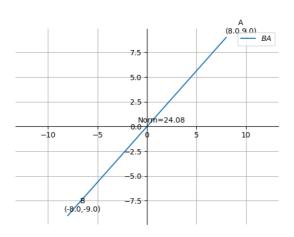
$$d = ||\mathbf{A} - \mathbf{B}|| = \sqrt{(\mathbf{A} - \mathbf{B})^T (\mathbf{A} - \mathbf{B})}$$
 (0.1)

$$\implies d = \sqrt{\left(2a \quad 2b\right) \begin{pmatrix} 2a \\ 2b \end{pmatrix}} \tag{0.2}$$

$$\implies d = \sqrt{4a^2 + 4b^2} \tag{0.3}$$

$$\implies d = 2\sqrt{a^2 + b^2} \tag{0.4}$$

$$\implies d = 2\sqrt{145} \tag{0.5}$$



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