

1.8.11

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Question:

AOBC is a rectangle whose three vertices are vertices **A**(0,3), **O**(0,0), **B**(5,0). The length of diagonal is _____.

Solution:

From the given information,

$$A = \begin{pmatrix} 0 \\ 3 \end{pmatrix}, O = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, B = \begin{pmatrix} 5 \\ 0 \end{pmatrix} \quad (0.1)$$

Then the length of the diagonal AB is :

$$A - B = \begin{pmatrix} 0 \\ 3 \end{pmatrix} - \begin{pmatrix} 5 \\ 0 \end{pmatrix} = \begin{pmatrix} -5 \\ 3 \end{pmatrix}, \quad (0.2)$$

(0.3)

$$(A - B)^T (A - B) = 34 \quad (0.4)$$

Thus the desired distance is

$$\Rightarrow AB = ||A - B|| = \sqrt{34} \quad (0.5)$$

