Assignment 2

G.Rajanarsavva

Download all python codes from

https://github.com/grajanarsavva/Matrix−theory/codes

and latex-tikz codes from

https://github.com/grajanarsavva/Matrix−theory

1 Question No. 2.45

Can you construct a Rhombus ABCD with AC=6 and BD=7 ?

2 Explanation

Let the vertices of the rhombus $ABCD$ be **A**,**B**,**C** and **D**.
Given AC and BD are the diagonals. AC = 6 and BD = 7
And O is the midpoint of rhombus.
$OA = OC = \frac{1}{2}(OC)$
$OA = OC = \frac{1}{2}6 = 3$
$OD = OB = \frac{1}{2}(OB)$
$OD = OB = \frac{1}{2}7 = 4.5$
We obtain the vertices of the rhombus as follows

$$\mathbf{A} = \begin{pmatrix} -3 \\ 0 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 0 \\ -3.5 \end{pmatrix}, \mathbf{C} = \begin{pmatrix} 3 \\ 0 \end{pmatrix}, \mathbf{D} = \begin{pmatrix} 0 \\ 3.5 \end{pmatrix} \quad (2.0.1)$$

Plot the Rhombus $ABCD$ is as follows:

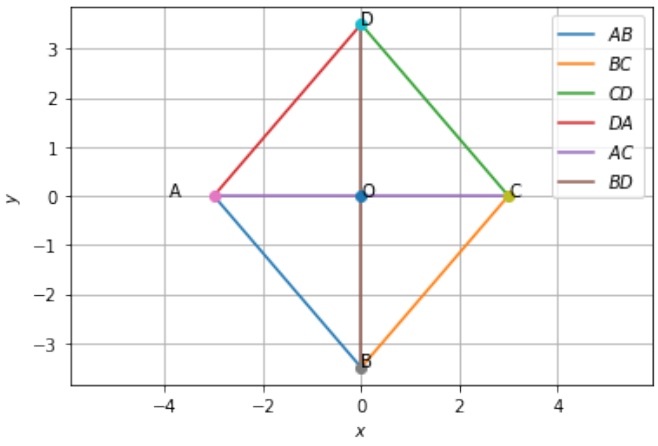

Fig. 2.1: Rhombus ABCD