

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.

$$OA = OC = \frac{1}{2} \cdot AC$$

$$OA = OC = \frac{1}{2} \cdot 6 = 3$$

$$OD = OB = \frac{1}{2} \cdot BD$$

$$OD = OB = \frac{1}{2} \cdot 7 = 3.5$$

We obtain the vertices of the rhombus as follows

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

Plot the Rhombus $ABCD$ is as follows:

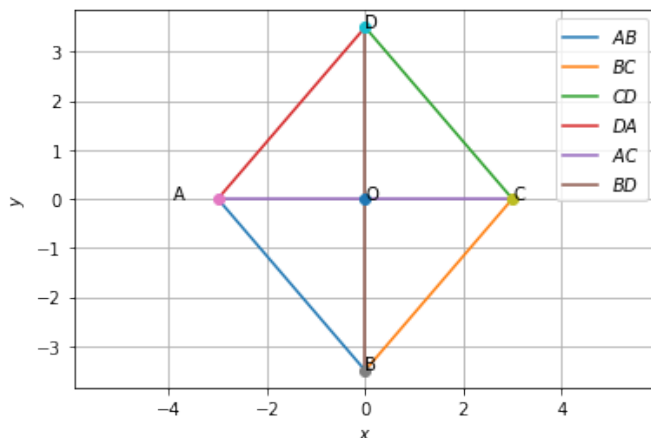


Fig. 2.1: Rhombus $ABCD$