## Assignment 2

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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  $\mathbf{A}, \mathbf{B}, \mathbf{C}$  and  $\mathbf{D}$ .

Given AC and BD are the diagonals. AC = 6 and BD = 7

BD = 7

And O is the midpoint of rhombus.

$$OA = OC = 1/2*(AC)$$

$$OA = OC = 1/2*(6) = 3$$

$$OD = OB = 1/2*(BD)$$

$$OD = OB = 1/2*(7) = 4.5$$

We obtain the vertices of the rhombus as follows

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

Plot the Rhombus *ABCD* is as follows:

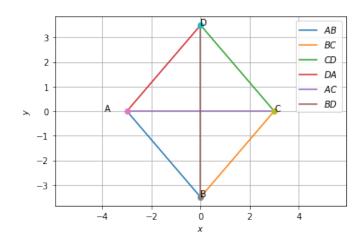


Fig. 2.1: Rhombus ABCD