Assignment 3

sravani sandya

1 Problem 1

https://github.com/gadepall/ncert/blob/main/linalg/construction/gvv ncert constr.pdf Q.no.2.10

construct MORE where $MO = 6, OR = 4.5, \angle M = 60°, \angle O = 105°$ and $\angle R = 105°$

2 Solution

The basic property of quadrilateral is that

Lemma 2.1.
A quadrilateral should be closed shape with 4 sides

Lemma 2.2.
All the internal angles of a quadrilateral sum up to 360°

Where quadrilateral MORE has is constructed considering following parameters

$MO = 6cm$,
$OR = 4.5cm$,
$\angle M = 60°, \angle O = 105° \angle R = 105°$

The quadrilateral was plotted with given parameters, Co-ordinates were found to be

$$\mathbf{M} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$$\mathbf{O} = \begin{pmatrix} 6 \\ 0 \end{pmatrix}$$

$$\mathbf{R} = \begin{pmatrix} 7.3 \\ 4.8 \end{pmatrix}$$

$$\mathbf{E} = \begin{pmatrix} 2.2 \\ 5.6 \end{pmatrix}$$

Based on the co-ordinates, The value of angle E was calculated

$$\angle E = 90°$$

Now, The sum of all angles should be 360°if MORE is a quadrilateral, Then

$$\angle M + \angle I + \angle S + \angle T = 360°$$

60+105+105+90 = 360°

Thus, The figure plotted with given parameters fulfills the criterion, i.e the sum of angles of a quadrilateral should be 360°, Thus we can plot the quadrilateral with given parameters.

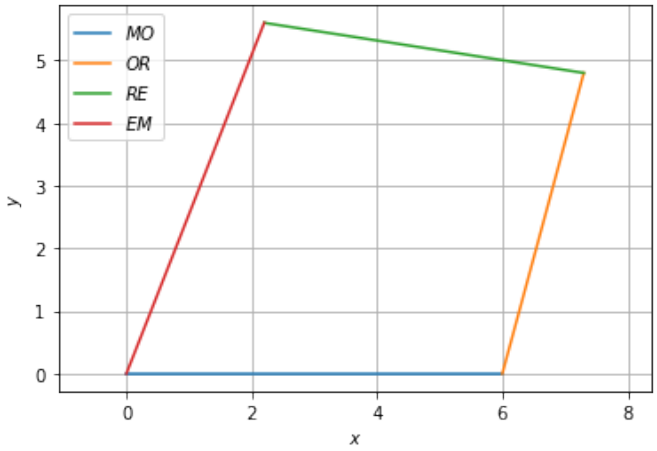

Fig. 0: Quadrilateral MORE