

# Quadrilateral with angles Using lines

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## 1 Problem statement

The angles of quadrilateral are in the ratio 3:5:9:13. Find all the angles of the quadrilateral.

## 2 Considerations

As per given data, the following table has been prepared.

Symbol	Value	Description
x		constant
a	3x	Angle A
b	5x	Angle B
c	9x	Angle C
d	13x	Angle D

Table 1: Considerations

## 3 Plot of Quadrilateral

Plot of the quadrilateral is shown in the figure 1.

## 4 Solution

Let angle in the ratio 3:5:9:13 be a,b,c,d

Let  $a=3x, b=5x, c=9x, d=13x$

where x is any number

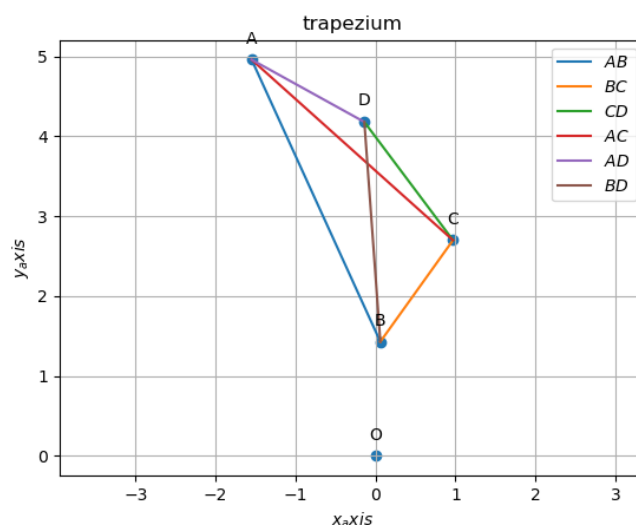


Figure 1: Plot of Quadrilateral

We know that

Sum of angle of quadrilateral is  $360^\circ$

$a+b+c+d=360$  [Angle sum property of quadrilateral]

$3x+5x+9x+13x=360^\circ$

$30x=360^\circ$

$x=360/30$

$x=12$

Hence the angles of Quadrilateral are

$a=3x=3 \times 12=36^\circ$

$b=5x=5 \times 12=60^\circ$

$c=9x=9 \times 12=108^\circ$

$d=13x=13 \times 12=156^\circ$

## 5 Software

Download the codes given in the link below and execute them.

<https://github.com/meertabresali-FWC-IITH/project/blob/main/Asgn8.opt.advance/codes/optadv.py>

## 6 Conclusion

The angles of Quadrilateral are

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$$b=5x=5\times 12=60^\circ$$

$$c=9x=9\times 12=108^\circ$$

$$d=13x=13\times 12=156^\circ$$