

Python Programming @ The department of Computer Science



Quadrilaterals

Requirements

There are many different types of quadrilateral, each of which has particular geometric properties. A number of the more common types of named quadrilaterals are presented in the table where the letters a, b, c and d indicate the angles (see Figure for additional clarification):

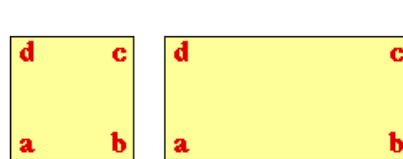
Name	Properties
Rectangle or Square	$a = b = c = d$
Kite	Either: (i) $a = c, b \neq d$ or (ii) $b = d, a \neq c$
Parallelogram	$a = c, b = d, a \neq b$

Note that a Rhombus is a special kind of parallelogram. Other kinds of named quadrilateral that we might have considered are Trapeziums and Isosceles Trapeziums. Any over four sided shape is simply an irregular quadrilateral.

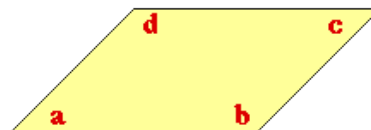
Design and implement a Python application that, given the four angles making up a quadrilateral classifies the figure as being either: (i) a square or rectangle, (ii) a kite, (iii) a parallelogram, or (iv) some other form of quadrilateral.

Notes:

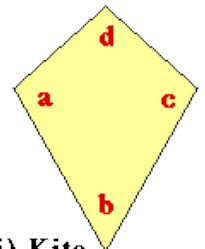
1. Assume that angles are represented in the form of degrees (i.e. not Radians) and that they are input as integers .
2. Angles must be greater than 0 and less than 180 (otherwise you cannot form a quadrilateral).
3. It is only necessary to input the first three angles as the fourth can be calculated using the knowledge that the angles in a quadrilateral add up to 360 degree.



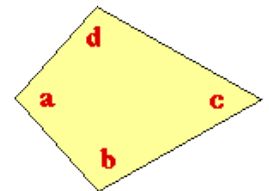
(i) Square or Rectangle
($a = b = c = d$)



(iii) Parallelogram
($a = c, b = d, a \neq b$)



(ii) Kite
($a = c, d \neq b$ or
 $b = d, a \neq c$)



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