

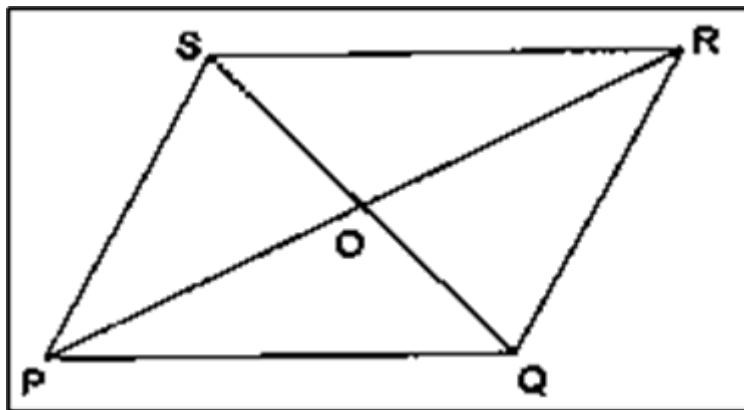
FlexiPrep

Math's: Quadrilaterals: Properties of Different Types of Quadrilaterals (For CBSE, ICSE, IAS, NET, NRA 2022)

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Properties of a Parallelogram

- The opposite sides of a parallelogram are equal. In the parallelogram PQRS given below $PQ = SR$ and $PS = QR$
- The opposite angles of a parallelogram are equal. In $\parallel gm$ PQRS , $\angle PSR = \angle PQR$ and $\angle SRQ = \angle QPS$
- The diagonals of a parallelogram bisect each other. In $\parallel gm$ PQRS , $OS = OQ$ and $OP = OR$

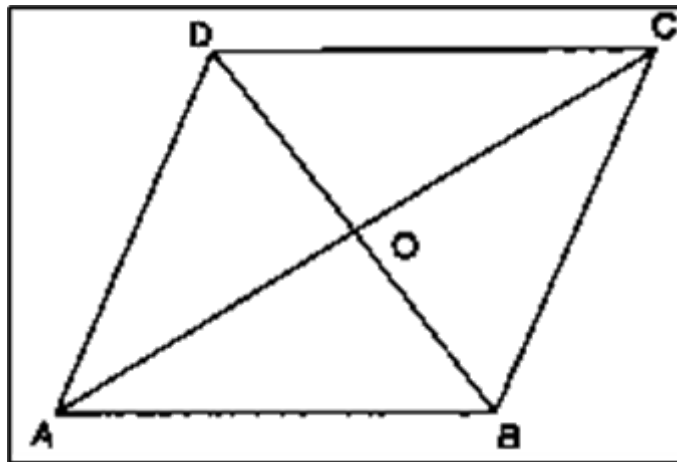


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Properties of a Rhombus

Since rhombus is a type of parallelogram, the properties of a parallelogram are also true for rhombus.

- The opposite sides of a rhombus are equal. In the rhombus ABCD given below $AB = DC$ and $AD = BC$
- The opposite angles of a rhombus are equal. In rhombus ABCD , $\angle ADC = \angle CBA$ and $\angle DAB = \angle DCB$
- The diagonals of a rhombus bisect each other at right angles. In rhombus ABCD , $OC = OA$ and $OB = OD$. Also, $\angle COB = \angle COD = \angle BOA = \angle DOA = 90^\circ$

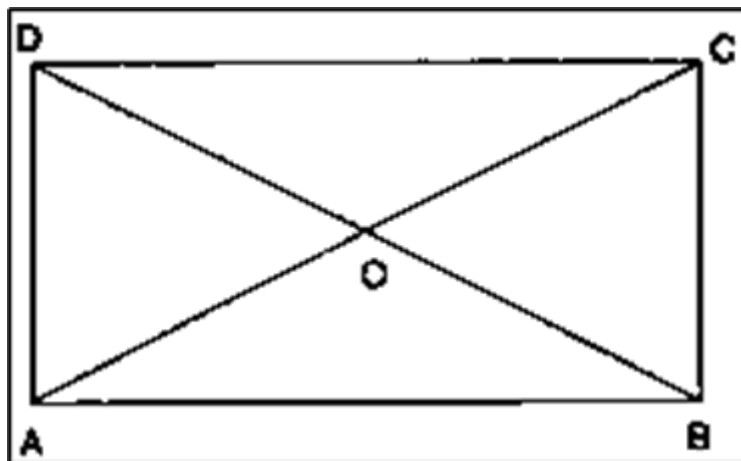


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Properties of a Rectangle

All the properties of a parallelogram apply on rectangle too in addition to some more specific properties.

- The opposite sides of a rectangle are equal. In the given rectangle ABCD , $AB = DC$ and $AD = BC$
- Each angle of a rectangle is right-angle. $\angle ADC = \angle CBA$ and $\angle DAB = \angle DCB = 90^\circ$
- The diagonals of a rectangle are equal. $DB = AC$
- The diagonals of a rectangle bisect each other. $OC = OA$ and $OB = OD$.

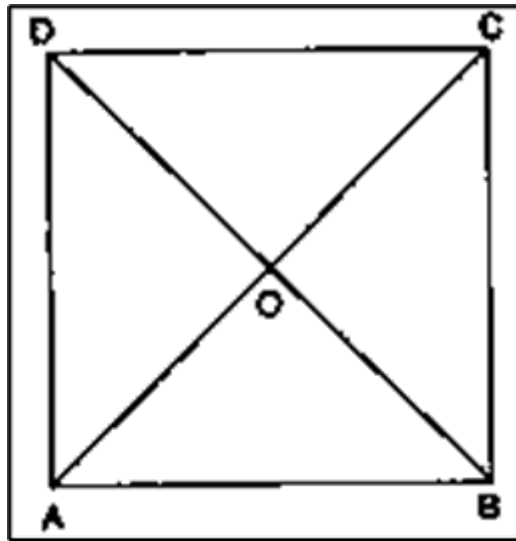


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Properties of a Square

Since a square is a type of rectangle, all the properties of rectangle also apply on square.

- All the sides of a square are equal. In the given square ABCD , $AB = BC = CD = AD$
- Each of the angles are right angles. i.e.. $\angle ADC = \angle CBA$ and $\angle DAB = \angle DCB = 90^\circ$
- The diagonals of a square are equal. $DB = AC$
- The diagonals of a square bisect each other at right angles i.e.. $OC = OA$ and $OB = OD$. Also, $\angle COB = \angle COD = \angle BOA = \angle DOA = 90^\circ$.



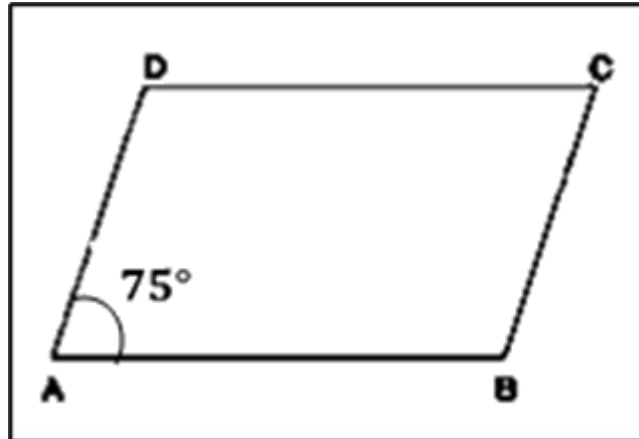
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1. In a parallelogram ABCD , $\angle A = 75^\circ$. Find the measures of the other angles.

Solution- Given, $\angle A = 75^\circ$

We know that the opposite angles of a parallelogram are equal.

Then, $\angle C = \angle A = 75^\circ$.



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The sum of adjacent angles of a parallelogram equal 180°

$$\angle A + \angle D = 180^\circ$$

$$75^\circ + \angle D = 180^\circ$$

$$\angle D = 180^\circ - 75^\circ = 105^\circ$$

$$\angle D = \angle B = 105^\circ \text{ (opp. } \angle \text{ s of a ll gm)}$$

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