

## Quadrilaterals

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### Classification and Properties

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## Quadrilaterals

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Definition: A plane figure with four sides which intersect at endpoints



$x^\circ + y^\circ + z^\circ + w^\circ = 360^\circ$

Properties:

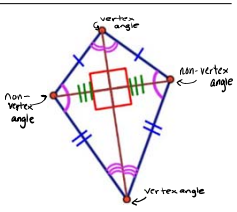
- The sum of the interior angles is 360 degrees

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## KITES

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Definition: A *kite* is a quadrilateral whose adjacent sides are congruent, but opposite sides are not



Properties:

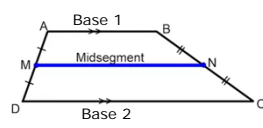
- Diagonals are Perpendicular
- Non-Vertex Angles are Congruent
- Diagonal between Vertex Angles bisects the other diagonal
- Diagonal between Vertex Angles bisects the Vertex Angles

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## Trapezoid

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Definition: A *trapezoid* is a quadrilateral with only one set of parallel lines



Properties:

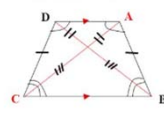
- The parallel sides are called the **bases**
- The midsegment is the average of the bases

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## Isosceles Trapezoid

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Definition: An isosceles trapezoid is a trapezoid whose non-base sides are congruent.



Properties:

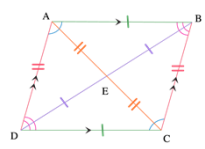
- All the properties of Trapezoids
- Diagonals are Congruent
- Opposite Angles are Supplementary
- Base Angles are Congruent

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## Parallelogram

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Definition: A *parallelogram* is a quadrilateral whose opposite sides are parallel.



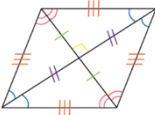
Properties:

- Diagonals bisect each other
- Opposite Sides are Congruent
- Opposite Angles are Congruent
- Consecutive Angles are Supplementary

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### Rhombus

Definition:  
A *rhombus* is a parallelogram whose sides are all congruent



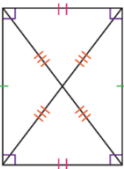
Properties:

- All properties of Parallelogram
- Diagonals are perpendicular
- Diagonals Bisect Angles

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### Rectangle

Definition:  
A *rectangle* is a parallelogram with four right angles



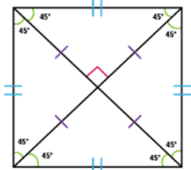
Properties:

- All properties of Parallelogram
- Diagonals are Congruent

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### Square

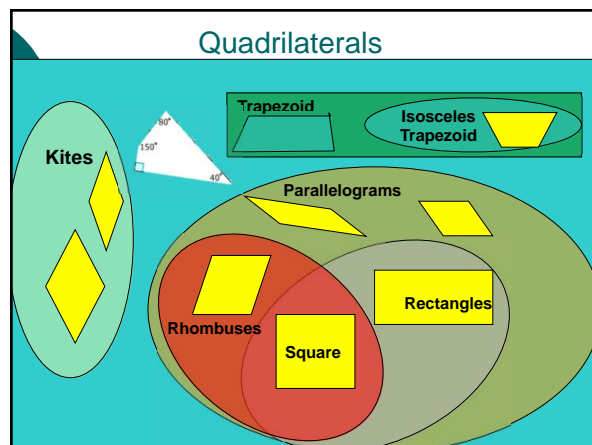
Definition:  
A *square* is a rectangle with four congruent sides



Properties:

- All properties of Rectangle and Rhombus

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