

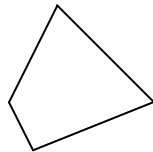
Shape Classification Math Help

Learning Objective:

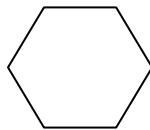
- Match the name to the shape of the given triangle, quadrilateral and regular polygon.
- Recognize that shapes can be classified according to their sides and/or angles.
- Recognize and understand all properties that each shape has.
- Understand that one shape can have the properties of another shape.
- Interpret and understand how to use a Venn Diagram.

Helpful Hints:

Polygon – any closed shape made from line segments.



Regular Polygon – a closed shape that has all sides equal and all angles equal.



Classification by Sides - the name of a shape is determined by the number of sides.

e.g. Pentagon – has 5 sides.


Means 5

Properties of a Polygon – refers to the qualities of the sides or angles in the shape. That is, if the sides are parallel and/or equal or if the angles are equal or unequal.

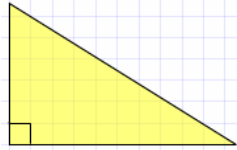
e.g. Parallelogram – has equal and parallel opposite sides, equal opposite angles.



Shape Properties:

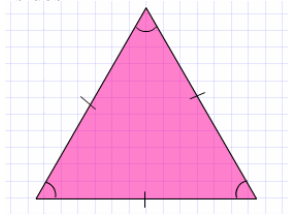
Triangle – has 3 sides.

Right triangle - contains a 90° angle.



Equilateral triangle - 3 equal sides and 3 equal angles.

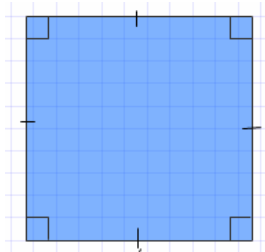
equal sides



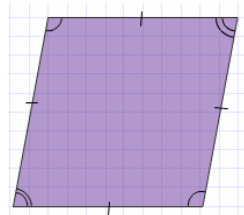
Quadrilateral – has 4 sides.

4 sides

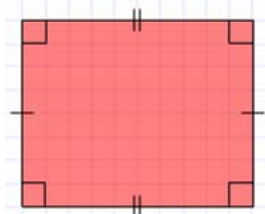
Square – 4 equal sides and 4 right angles, opposite sides parallel.



Rhombus – 4 equal sides with opposite sides parallel, opposite angles equal.



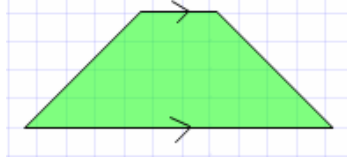
Rectangle – 4 right angles, opposite sides equal and parallel.



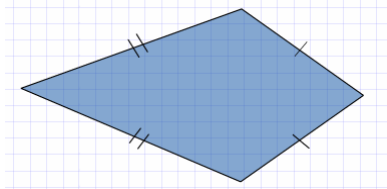
Parallelogram – opposite sides are equal and parallel, opposite angles equal.



Trapezoid – one pair of opposite sides parallel.

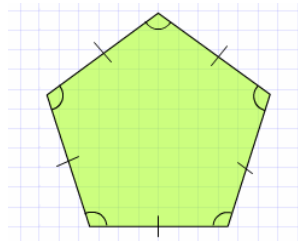


Kite – 2 pairs of equal adjacent sides.



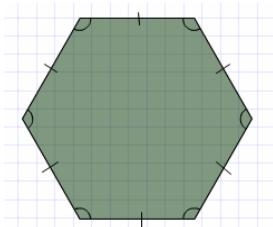
Pentagon – has 5 sides.

Regular Pentagon – 5 equal sides and 5 equal angles;



Hexagon – has 6 sides.

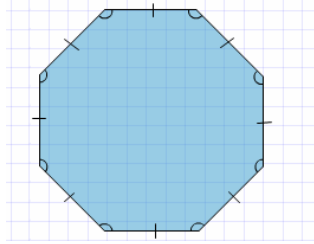
Regular Hexagon – 6 equal sides and 6 equal angles.



Heptagon – has 7 sides.

Octagon – has 8 sides.

Regular Octagon – 8 equal sides and 8 equal angles.

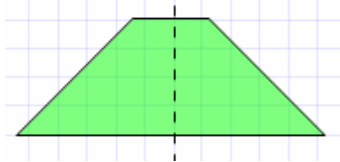


Nonagon – has 9 sides.

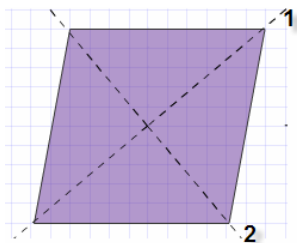
Decagon – has 10 sides.

Line of Symmetry: is the fold line that divides a shape into 2 identical parts. A shape may have one or more lines of symmetry.

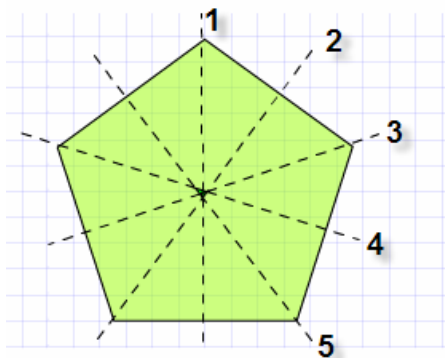
e.g. Trapezoid – has one line of symmetry.



Rhombus – has 2 lines of symmetry.

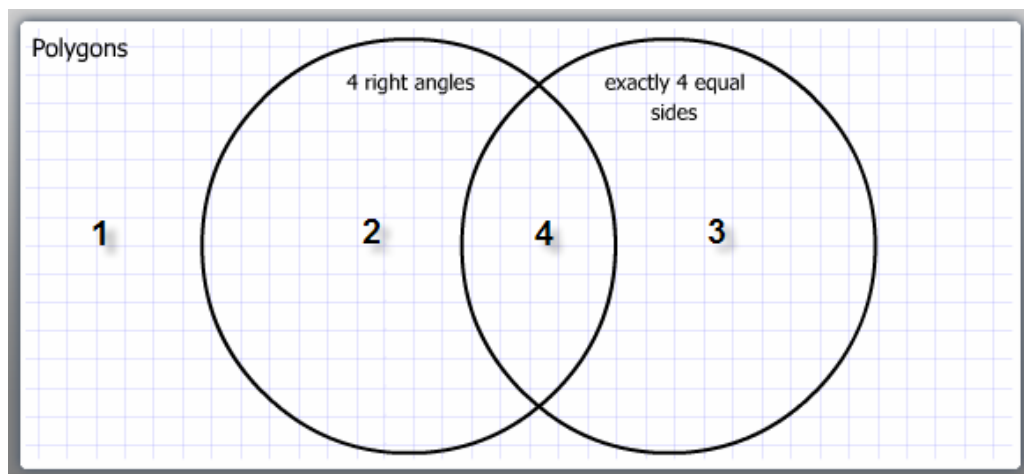


Regular Pentagon – has 5 lines of symmetry.



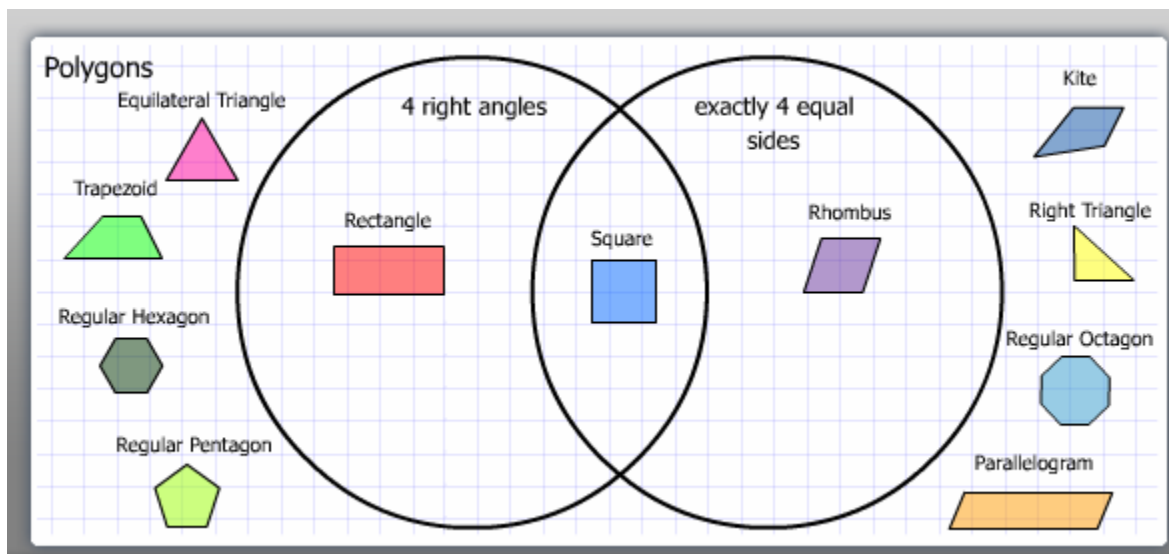
Venn Diagrams – a field or space used to group together items with common properties.

e.g. 1.



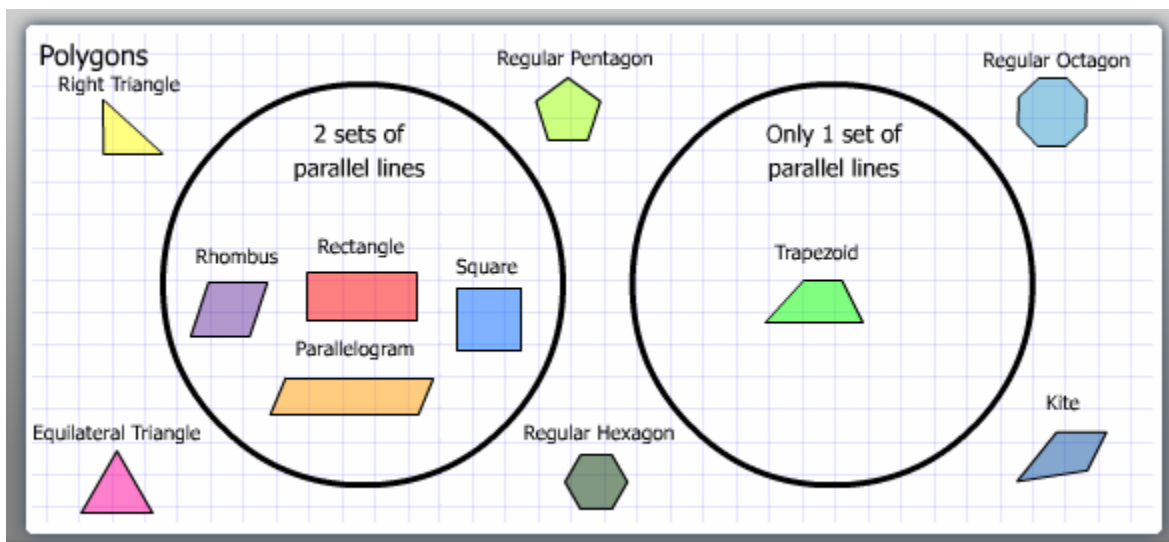
1. The rectangle contains all shapes that are polygons.
2. The circle on the left contains all shapes with 4 right angles.
3. The circle on the right contains all shapes that have exactly 4 equal sides.
4. The overlap of the 2 circles contains all shapes that have exactly 4 right angles and 4 equal sides.

Solution: Each region groups together shapes with common properties.



- The region outside of the circles – polygons.
- The circle on the left contains shapes with 4 right angles – rectangle and square.
- The circle on the right contains shapes with exactly 4 equal sides – rhombus and square.
- The overlapping region in the middle contains shapes that have exactly 4 right angles and 4 equal sides – can only be a square.

e.g 2. The Venn Diagram below groups together shapes with common parallel line properties:



- The region outside of the circles – do not have any sets of parallel lines or more than 2 sets of parallel lines.
- The circle on the left contains shapes with only 2 sets of parallel lines – rhombus, rectangle, parallelogram, and square.
- The circle on the right contains shapes with only 1 set of parallel lines – can only be a trapezoid.