

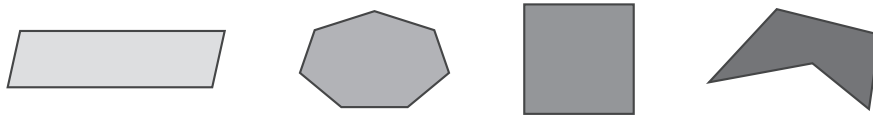
Dear parent or guardian: This is a summary of the key ideas your child is learning in mathematics. You can use this summary as background as you support your child's work.

1 Comparing Polygons

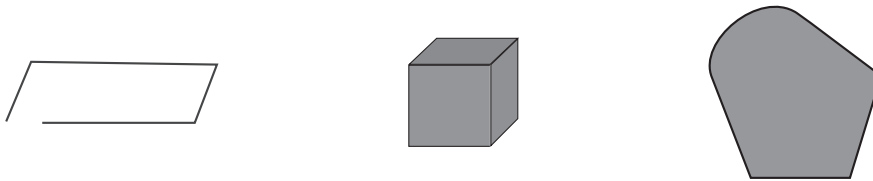
Polygon

A polygon is a closed two-dimensional (2-D) shape with only straight sides.

- These shapes are all polygons because they are closed 2-D shapes with straight sides.



- These shapes are **not** polygons. The first shape is not closed, the second shape is not 2-D, and the third shape has a curved side.



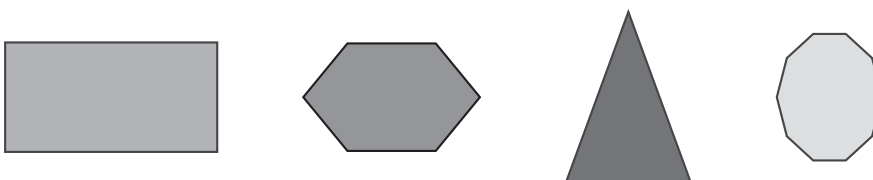
Regular and Irregular Polygons

A regular polygon is a polygon where all of the inside angles are equal and all of the side lengths are equal.

- These shapes are all regular polygons. No matter which side is at the bottom, the shape always looks the same.



- These shapes are **not** regular polygons. Their angles are not all the same and/or their sides are not all the same lengths. They are called irregular polygons.

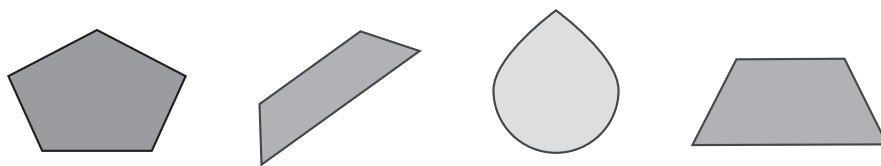


Comparing Shapes

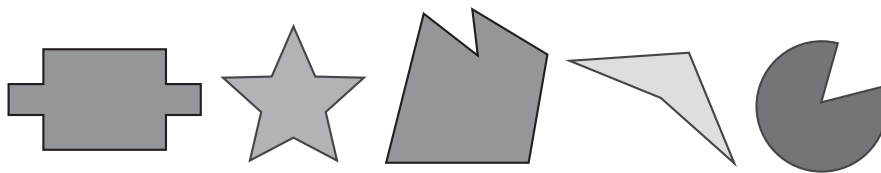
You can compare 2-D shapes based on their attributes and sometimes their properties. For example, you could compare 2-D shapes based on whether all the sides are straight, whether all the sides are equal, whether the shapes have to have right angles, or whether diagonals have to be equal.

You might also sort shapes based on whether the shape is convex. A shape is convex if it does not have an indent and if all the vertices point out.

- These shapes are convex.



- These shapes are **not** convex because they have vertices that point in. These shapes are called concave.



Notes

Shapes that are not convex are called concave. The focus of most geometric learning at the elementary level is on convex shapes, so the term “convex” is more important for students to learn.

Definitions

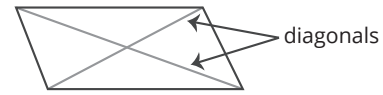
attribute: a characteristic of a shape or object, for example, colour, number of sides, number of vertices, size

concave shape: a shape where at least one vertex points inward

convex shape: a shape where all the vertices point out

Definitions (continued)

diagonal (of a polygon): a line that is not a side, but connects any two vertices of a polygon



irregular polygon: a polygon in which all side lengths and/or all angles are not equal, for example, a rhombus

polygon: a closed 2-D shape with all straight sides, for example, triangle, rectangle, hexagon

property: an attribute that is shared by all shapes of a certain type; for example, one property of squares is having four equal sides

regular polygon: a polygon in which all side lengths and all angles are equal, for example, a square

two-dimensional (2-D) shape: a shape having length and width

vertex (of a 2-D shape): (plural: vertices) the point where two sides of a shape meet
