Plane Figures

3.G.1

The word *polygon* means "many angles."

A polygon cannot be an open figure. Each side in a polygon must meet to form a vertex.

This is not a polygon.

The plural form of *vertex* is *vertices*.

A regular polygon has sides that are the same length.

An irregular polygon has sides that are not all the same length.

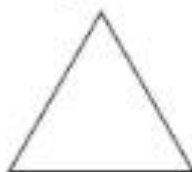A polygon always has the same number of sides and angles.

A **polygon** is a closed figure formed by line segments.

Each **line segment** is a **side** of the polygon. Where two sides meet, they form a corner, or **vertex**. Each vertex in a polygon forms an **angle**.

Polygons are classified by the number of sides they have.

A **triangle** has 3 sides.

A **quadrilateral** has 4 sides.

A **pentagon** has 5 sides.

A **hexagon** has 6 sides.

An **octagon** has 8 sides.

What type of polygon is shown below?

Count the number of sides: 6

A polygon with 6 sides is a hexagon. So this polygon is a hexagon.

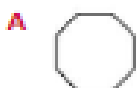**SAMPLE** Which figure below is a polygon?

A   B   C   D

✓ The correct answer is D. A polygon is a closed figure with line segments for sides. Choices A and B are open figures. Choice C has a curved edge. Only choice D is a polygon.

1 What type of polygon is the figure below?

A   octagon   C   pentagon

B   quadrilateral   D   triangle

2 Which figure below is an octagon?

A

C

B

D

3 What type of polygon is the figure below?

A   hexagon   C   pentagon

B   quadrilateral   D   triangle

4 Which figure below is *not* a polygon?

A

C

B

D

5 What type of polygon is the figure below?

A   triangle   C   pentagon

B   octagon   D   quadrilateral

6 How many sides does a hexagon have?

A   4   C   6

B   5   D   8

SAMPLE What type of polygon is formed by the sign? Explain.

STOP

Answer _____

✓ The sign has 8 sides, so it is an octagon.

7 Is it possible to draw a polygon with only 2 line segments? Explain.

_____

_____

8 Camilla uses toothpicks to make a triangle, a quadrilateral, and a pentagon. How many toothpicks does she use in all? Explain.

_____

_____

9 In the space below, draw a pentagon.

10 Wendy wants to draw a polygon with 4 vertices and 5 sides. Explain why this is *not* possible.

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