



# POLYGONS

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General Polygons

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# GENERAL POLYGONS

The background of the slide features three large, overlapping triangles. A yellow triangle is on the left, a cyan triangle is on the right, and a green triangle is at the bottom center, partially overlapping the other two.

# GENERAL POLYGONS – DEFINITION

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The endpoints of those segments are called **vertices**.

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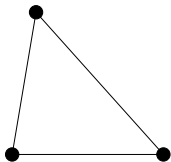
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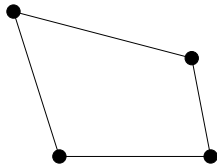
The endpoints of those segments are called **vertices**.

The segments themselves are called **edges**.

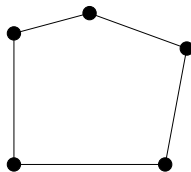
# GENERAL POLYGONS – EXAMPLES



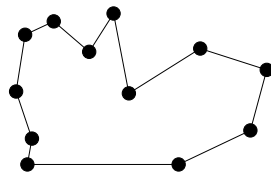
Triangle



Quadrilateral

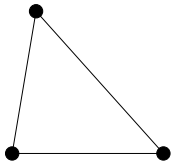


Pentagon

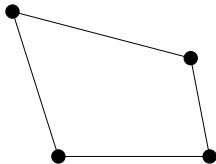


Dodecagon

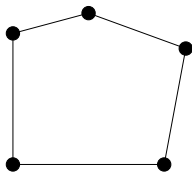
# GENERAL POLYGONS – EXAMPLES



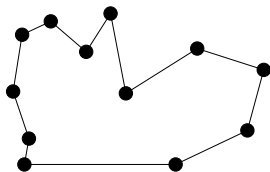
Triangle



Quadrilateral



Pentagon

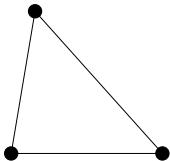


Dodecagon

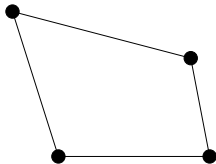
A polygon with  $n \in \mathbb{N}$  sides is called an  $n$ -gon.



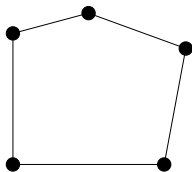
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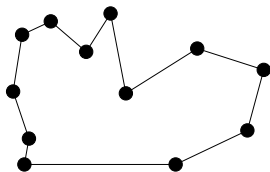
Triangle



Quadrilateral



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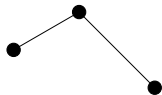


Dodecagon

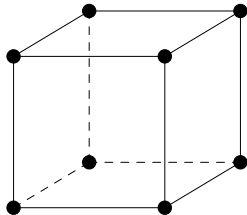
A polygon with  $n \in \mathbb{N}$  sides is called an  $n$ -gon.

For example a polygon with 123456 sides is called a 123456-gon or decadismyriatrichilliatetrahectapentacontakaihexasagon.

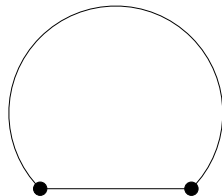
# GENERAL POLYGONS – COUNTEREXAMPLES



Not closed



3D



Not straight

# GENERAL POLYGONS – CONVEXITY

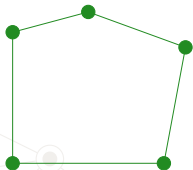
## CONVEX POLYGON

A polygon is called **convex** if it has no internal angle greater than  $180^\circ$ .

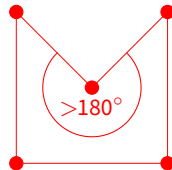
# GENERAL POLYGONS – CONVEXITY

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Convex



NOT convex

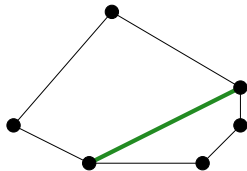
# CONVEX POLYGONS

The background of the slide is composed of three large, solid-colored triangles that meet at a central point. A yellow triangle occupies the bottom-left area, a cyan triangle occupies the bottom-right area, and a green triangle is positioned at the bottom center, overlapping the other two. The top half of the slide is a plain white background.

# CONVEX POLYGONS – DIAGONALS

## DIAGONAL IN A CONVEX POLYGON

A **diagonal** is a segment connecting two non-adjacent vertices.



Diagonal in a convex hexagon.