Interior Angle Sum Theorem for Polygons
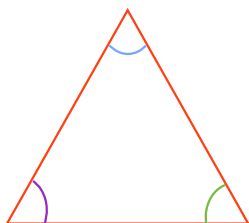
The angles inside of a Polygon are called interior angles.

Sum of Interior Angles of polygons

$$S = (n - 2) \cdot 180°$$

n = number of sides of the polygon

Triangle	Quadrilateral	Pentagon
3 sides	4 sides	5 sides

Sum of Interior Angles of polygons
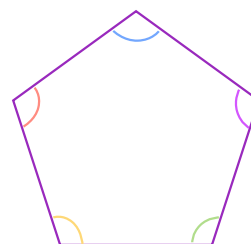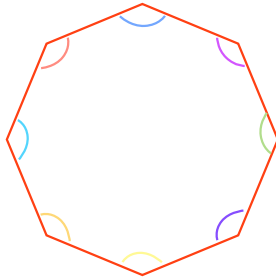
$$S = (n - 2) \cdot 180°$$

n = number of sides of the polygon
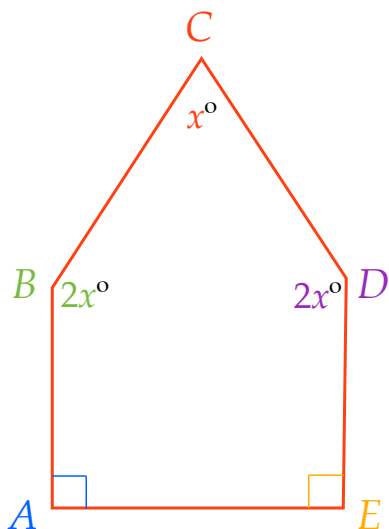
Octagon
8 sides

Sum of Interior Angles of polygons

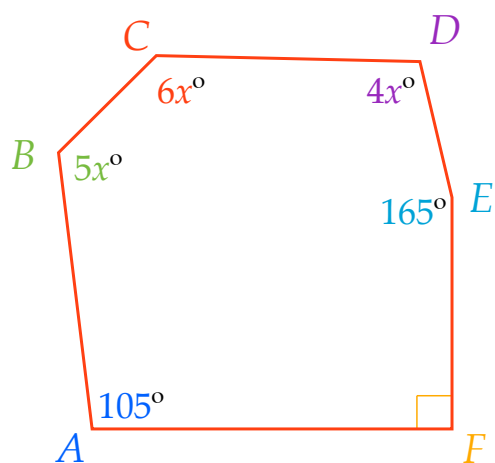$$S = (n - 2) \cdot 180°$$
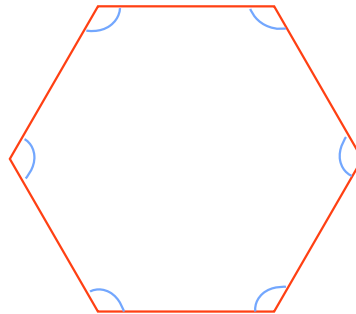
n = number of sides of the polygon
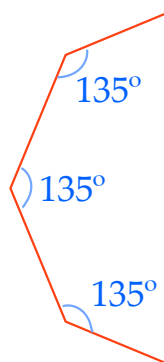
18-gon

$4x$-gon

Solve for the value of x.

C

x^o

B $2x^o$ $2x^o$ D

A E

Solve for the value of x.

C D

$6x^o$ $4x^o$

B $5x^o$

165° E

105°

A F

Interior Angle Sum Theorem for Polygons

Find the measure of each interior angle of regular hexagon.

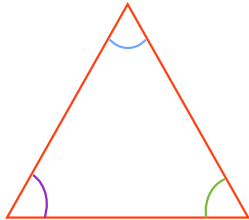Given the measure of an interior angle of a regular polygon is 135º, find the number of sides of that polygon.

135º

135º

135º

Sum of Interior Angles of polygons
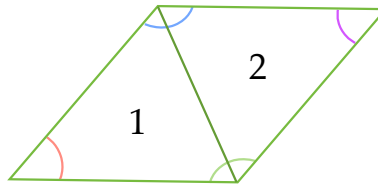
$$S = (n - 2) \cdot 180°$$
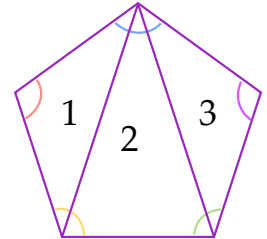
n = number of sides of the polygon

Triangle
3 sides

Quadrilateral
4 sides

Pentagon
5 sides

1

2

1

2

3

180°

$2 \cdot 180° = 360°$

$3 \cdot 180° = 540°$

Interior Angle Sum Theorem for Polygons