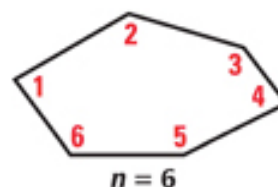# Honors Geometry

Notes Section 8.1

Find Angle Measures in Polygons

<u>Diagonal:</u> _____

THEOREM 8.1 Polygon Interior Angles Theorem

The sum of the measures of the interior angles
of a convex n-gon is $(n - 2) \cdot 180°$.

$m\angle 1 + m\angle 2 + \cdots + m\angle n = (n - 2) \cdot 180°$
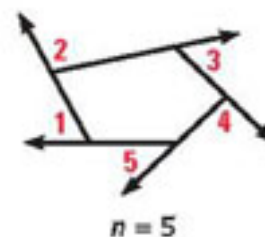

$n = 6$

COROLLARY TO THEOREM 8.1 Interior Angles of a Quadrilateral

The sum of the measures of the interior angles of a quadrilateral is $360°$.

THEOREM 8.2 Polygon Exterior Angles Theorem

The sum of the measures of the exterior angles of a
convex polygon, one angle at each vertex, is $360°$.

$m\angle 1 + m\angle 2 + \cdots + m\angle n = 360°$

$n = 5$

EXAMPLE 1   Find the sum of the measures of the interior
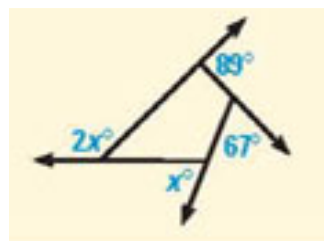angles of a convex octagon.

EXAMPLE 2   The sum of the measures of the interior angles of a convex polygon is 900°. Classify the polygon by the number of sides.
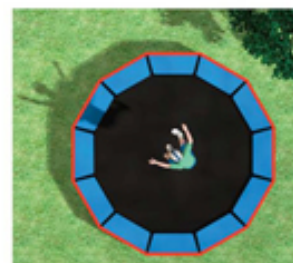
EXAMPLE 3   Find the value of x.

108°   121°

$x°$ 59°

EXAMPLE 4   What is the value of x?

89°

$2x°$ 67°

$x°$

EXAMPLE 5   The trampoline show is shaped like a rectangular dodecagon.

a) Find the measure of each interior angle

b) Find the measure of each exterior angle