Geometry Info Sheet #25

Polygon Angles

Definitions

Polygon: A two-dimensional closed plane figure made up of at least three straight line segments (sides) such that each segment intersects exactly two other segments at their endpoints (vertices)

A **diagonal** of a polygon is a segment that joins two non-adjacent vertices.

An **equiangular polygon** is a polygon in which all angles are congruent.

An **equilateral polygon** is a polygon in which all sides are congruent.

A **regular polygon** is a polygon that is both equiangular and equilateral.

The **center** of a regular polygon is the point that is equidistant (i.e., the same distance) from all vertices of the polygon.

A **central angle** of a regular polygon is an angle whose vertex is the center of the polygon and whose sides pass through two consecutive vertices of the polygon.

Interior Angle: An angle inside a polygon formed by two adjacent sides of the figure; the number of interior angles in a polygon is the same as the number of sides of the polygon

Exterior Angle: The angle formed by extending a side of a polygon; each exterior angle forms a linear pair with an interior angle; the number of exterior angles in a polygon is twice the number of sides of the polygon

Formulas

The **measure of a central angle of a regular polygon** with n sides is: $\frac{360^\circ}{n}$

The **sum of the measures of the exterior angles of a convex polygon** is: 360 degrees

The **measure of an exterior angle of a regular polygon** with n sides is: $\frac{360^\circ}{n}$

The **sum of the measures of the interior angles of a convex polygon** with n sides is: $180^\circ(n-2)$

The **measure of an interior angle of a regular polygon** with n sides is: $\frac{180^\circ(n-2)}{n}$