If two angles form a linear pair, then the measures of the angles add up to 180 degrees.

If two angles are vertical angles, then they have equal measures (are congruent).

Parallel Lines & Transversals

Corresponding Angles Postulate
Alternate Interior Angles Theorem: If two parallel lines are intersected by a transversal, then alternate interior angles are equal.

\[ \angle 1 = \angle 2 \]

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Angles in Polygons

What is the sum of the angles in a quadrilateral?

To answer a question like this one, we can triangulate the quadrilateral. That is, we cut it into as few triangles as possible...

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Alternatively, we could memorize a formula.

**Polygon Angle Sum Theorem:** The sum of the angle measures in an \( n \)-gon is given by the formula:

\[ 180(n - 2) \]

(This formula works because there are 180 degrees in each of the \( n - 2 \) triangles we could draw into the quadrilateral.)

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So... if we have a regular polygon (all sides & angle measurements in the polygon are equal), then it is easy to know what the measure of the interior angles are. Just divide the total sum by the number of angles!

**Equiangular Polygon Conjecture:** You can find the measure of each interior angle of an equiangular \( n \)-gon by using the formula below.

\[ \frac{180^\circ(n - 2)}{n} \]

You can also use this alternate writing for the same formula if you're going to memorize something...

\[ 180^\circ - \frac{360^\circ}{n} \]

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There's also something true (all the time) about the **Exterior Angles** of a polygon: **For any polygon, the sum of the measures of a set of exterior angles is 360°**

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**Perpendicular Bisector Theorem:**

If \( m \) is the perpendicular bisector of \( \overline{AB} \), and point \( P \) is on line \( m \), then \( AP = BP \).

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