MathTime. GEOMETRY. 1

Greek letters

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Angles

- **Right angle**: α = 90°
- **Acute angle**: α < 90°
- **Obtuse angle**: α > 90°
- **Straight angle**: α = 180°

- **Complementary angles**: α + β = 90°
- **Supplementary angles**: α + β = 180°
- **Vertical angles**: α + β = 180°

Parallel lines cut by a transversal

Congruent (equal) triangles

- **(ASA)**
- **(SSS)**
- **(SAS)**
A parallelogram is a quadrilateral whose opposite sides are parallel.

**PROBLEMS**

1. Prove that the opposite angles of a parallelogram are equal.

2. Prove that if the opposite angles of a quadrilateral are equal then the quadrilateral is a parallelogram.

3. Prove that the sum of adjacent angles of a parallelogram equals 180°.

4. Prove that if the sum of adjacent angles of a quadrilateral is equal to 180° then the quadrilateral is a parallelogram.

5. Prove that the opposite sides of a parallelogram are equal.

6. Prove that if the opposite sides of a quadrilateral are equal then the quadrilateral is a parallelogram.

7. Prove that if two opposite sides of a quadrilateral are equal and parallel then the quadrilateral is a parallelogram.

8. Prove that a quadrilateral is a parallelogram if and only if its diagonals bisect each other.

9. Prove that the mid-segment of a triangle is parallel to its base and is equal to half of it.

10. Prove that the sum of angles in a triangle equals 180°.
    \[ \alpha + \beta + \gamma = 180°. \]