



## CHAPTER 7 TRIANGLES

### NOTES

#### Axioms and Theorems

1. **SAS Congruence:** Two triangles are congruent if any two sides and the included angle of one are equal to any two sides and the included angle of the other.
2. In an isosceles triangle, the angles opposite to the equal sides are equal.
3. **ASA Congruence:** Two triangles are congruent if any two angles and the included side of one are equal to any two angles and the included side of the other.
4. **AAS Congruence:** If any two angles and a non-included side of one triangle are equal to corresponding angles and side of another triangle, then the two triangles are congruent.
5. The sides opposite to equal angles of a triangle are equal.
6. **SSS Congruence:** If three sides of a triangle are equal respectively to the corresponding three sides of another triangle, then the two triangles are congruent.
7. **RHS Congruence:** If the hypotenuse and a side of a right angled triangle are equal to the hypotenuse and a side of another right angled triangle, the two right triangles are congruent.

#### Inequality Relations in a triangle

**Theorem:** If two sides of triangle are unequal, the angle opposite to the longer side is larger.

**Theorem:** In a triangle, the side opposite to the larger angle is longer.

**Theorem:** The sum of any two sides of a triangle is greater than the third side.

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