The only possibility remaining is ∡ACD > ∡BAC. In like manner, we can prove that ∡ACD > ∡ABC.

GROUP IV: THE PARALLEL POSTULATE

Definition B-18

Two lines are said to be *parallel* if they [lie in the same plane and] do not intersect.

IV. (Euclid's Axiom) Let a be any line and A a point not on it. Then there is at most one line [in the plane determined by a and A,] that passes through A and does not intersect a.

GROUP V: THE CONTINUITY AXIOMS

V,1. (Axiom of Archimedes) If $\overline{AB}$ and $\overline{CD}$ are any segments then there exists a number n such that n segments $\overline{CD}$ constructed contiguously from A, along the ray from A to B, will pass beyond the point B.

V,2. (Linear Completeness Axiom) An extension of a set of points on a line with its order and congruence relations existing among the original elements as well as the fundamental properties of line order and congruence that follows from Axioms I-III, and from V,1 is impossible.

A more precise version of the Axiom of Archimedes appears as Theorem III-13 in Section III-3. The Linear Completeness Axiom may re restated as follows. In any model for the set of statements consisting of Axioms I,1-3 (except for the second part of I,3), II,1-3, III,1-3, V,1, and Theorems B-7 and B-13, it is impossible to adjoin any new points to a line in such a way that these statements are still true for the extended line. Roughly speaking, V,2 asserts that a line has no "holes" in it.

Many authors replace V,1 and V,2 by Dedekind's Postulate (see Section III-3), which is an equivalent assumption.