

Triangle Theorems

9th Grade

Six rules that solve most triangle questions without measuring anything.

These relationships hold for every triangle, whatever its shape.

angles sum to 180°

Angle sum

180°

Always, in any plane triangle.

Exterior angle = sum of the two remote interior angles

Follows from the angle sum.

Isosceles

base angles equal

Equal sides face equal angles.

Triangle inequality

$a + b > c$

Any two sides must exceed the third.

The midsegment joining two midpoints is parallel to the third side and exactly half its length.