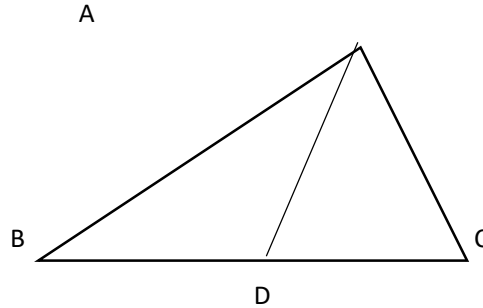


CONGRUENCE OF TRIANGLES

Q1. In the given figure, AD is the bisector of $\angle BAC$. Prove that $AB > BD$.



Q2. Bisectors of the angles B and C of an isosceles triangle with $AB = BC$ intersect each other at O. Show that external angle adjacent to $\angle ABC$ is equal to $\angle BOC$.

Q3. Line segment joining the mid-points M and N of parallel sides AB and DC, respectively of a trapezium ABCD is perpendicular to both the sides AB and DC. Prove that $AD = BC$.

Q4. Prove that in a triangle, other than an equilateral triangle, angle opposite to the longest side is greater than $2/3$ of the right angle.

Q5. Two lines l and m intersect at the points O and P is a point on a line n passing through the point O such that P is equidistant from l and m. Prove that n is the angle bisector of the angle formed by l and m.

Q6. O is a point in the interior of a square ABCD such that OAB is an equilateral triangle. Show that triangle OCD is an isosceles triangle.

Q7. ABC is a right angled triangle such that $AB = AC$ and bisector of angle C intersects the side AB at D. Prove that $AC + AD = BC$.

Q8. $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC. If AD is extended to intersect BC at E, show that

- i) $\triangle ABD$ is congruent to $\triangle ACD$.
- ii) $\triangle ABE$ is congruent to $\triangle ACE$.

- iii) AE bisects $\angle A$ as well as $\angle D$.
- iv) AE is the perpendicular bisector of BC.

