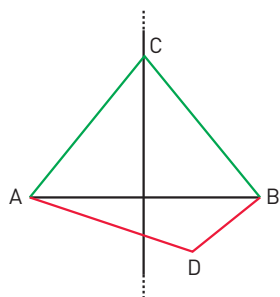


YOU & MATHS **A well-known locus** Let AB be a segment. Find the locus of the vertices of all the isosceles triangles with AB as their base. Justify your answer.

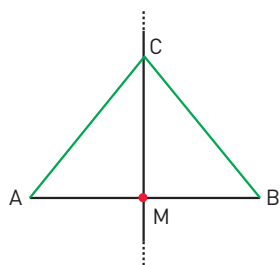
Point C is a vertex of an isosceles triangle with AB as its base if and only if $AC \cong BC$, as shown in the figure below.



This means that we are looking for the locus of all the points that are equidistant from the endpoints of the line segment. This locus is, as we know, the perpendicular bisector of the segment.

Note

We decided to consider M , the midpoint of segment AB , as the vertex of a degenerate triangle.



The locus of the vertices of all the non-degenerate isosceles triangles with AB as their base is the perpendicular bisector of the line segment, excluding the midpoint M itself.