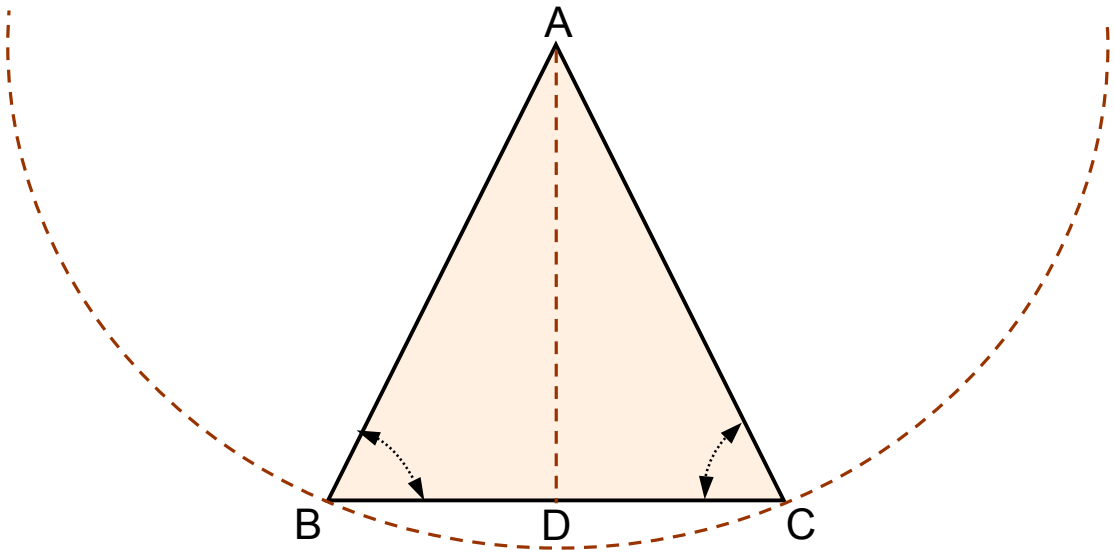
Proposition 4

In an isosceles triangle the angles at the base are equal.



Draw any isosceles triangle such as ABC above. Drawing a central angle such that sides AB and AC are radii of the circle will automatically create an isosceles triangle when points B and C are connected. Side BC will then be considered the base of the triangle. If D is the midpoint of side BC then line AD creates two angles BAD and DAC, which are equal. It is clear that triangles BAD and DAC must be identical because side BA equals side AC, (since they are both radii of the same circle), side AD is common to both triangles and angles BAD and DAC being equal we have satisfied the criterion of Proposition III, the Side-Angle-Side proposition. Therefore triangles BAD and DAC must be identical, and that being the case the angle at B must be equal to the angle at C.