

When solving angle problems, we need to know key properties about shapes.

For example, triangles in a semi-circle are right-angled at the point where the two shorter sides meet at one point on the circumference, and the angle between a radius and a tangent is a right-angle too.

In this example, the task is to find angle OAC.

As the longest side of the triangle is BC and is the diameter of the circle, where the two shorter sides meet the circumference forms a right angle, so angle BAC is 90 degrees.

AO and BO are the radii of the circle so angles BAO and OBA are the same size as ABO is an isosceles triangle.

The angles in a triangle always add up to 180 degrees so to find the size of BAO and OBA simply subtract 66 degrees from 180 degrees and divide the answer by two to get 57 degrees.

Angle OAC will be 90 degrees subtract 57 degrees which is 33 degrees.