8.2 Angle Between Tangent and Chord

OBJECTIVE
IDENTIFY THE ANGLE IN THE ALTERNATE SEGMENT WHICH IS SUBTENDED BY THE CHORD THROUGH THE CONTACT POINT OF THE TANGENT
Identifying the **angle** in alternate segment

- The relationship between the angle formed by the tangent and the chord with the angle in the alternate segment.
Circle Theorems

\[ \angle t = \angle s, \quad \angle b = \angle a \]
We use facts about related angles: A tangent makes an angle of 90 degrees with the radius of a circle, so we know that \( \angle OAC + x = 90^\circ \). The angle in a semi-circle is 90, so \( \angle BCA = 90 \). The angles in a triangle add up to 180, so \( \angle BCA + \angle OAC + y = 180^\circ \). Therefore \( 90^\circ + \angle OAC + y = 180^\circ \) and so \( \angle OAC + y = 90^\circ \). Hence, \( x = y \).