

Number of Tangents from a Point

Chapter 10: Circles · Topic 2

Key Concept

This property of equal tangent lengths from an external point is proven using congruent triangles — the two triangles formed by the centre, the external point, and each point of tangency are congruent (by RHS criterion, since both share the hypotenuse to the external point, have equal radii, and both have a right angle at the point of tangency), directly proving the two tangent segments must be equal in length.

Quick Revision Notes

- From an external point, exactly two tangents can be drawn to a circle.
- The two tangents from the same external point are always equal in length.
- From a point on the circle, only one tangent exists; from inside, no tangent exists.
- Equal tangent lengths are proven using congruent triangles (RHS criterion).

Practice Questions

- 1 State the property of the two tangents drawn from an external point to a circle.
- 2 Explain, using congruent triangles, why the two tangents from an external point are equal in length.
- 3 How many tangents can be drawn from a point exactly on the circle?