

Geometry 2: Circles

November 2016

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1.180 Points A and B are given. Find the locus of points P such that $\angle APB$ is right.

1.179 Prove that the circumcentre of a right-angled triangle is the midpoint of its hypotenuse.

1.221 A and B are on a circle Γ . P is a point such that AP and BP are tangents to Γ . Prove that $AP = BP$.

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1.252 Prove that if a circle is inscribed in a quadrilateral, the sums of each pair of opposite sides of the quadrilateral are equal.

Definition: Two circles are tangent if they intersect at exactly one point.

1.268 Prove that the line of centres of two tangent circles passes through the point of tangency.

1.269 Prove that two circles are tangent if and only if they are both tangent to the same line at the same point.

1.218 A circle, its diameter AB and point C on the diameter are given. Construct points X and Y , symmetric in the diameter, such that $YC \perp XA$.

1.281 The sums of each pair of opposite sides of a quadrilateral are equal. Prove that there exists a circle which is tangent to all four sides.