

NAME: _____

P.I. G.G.27: Write a proof arguing from a given hypothesis to a given conclusion

1. Prove that the measure of an angle formed by a secant and a tangent drawn from a point outside the circle is half the difference of the measure of the intercepted arcs.

3. Construct several pairs of intersecting tangents to a circle. Measure the central angle formed by the radii and the angle at the point of intersection of the tangents. What appears to be true? Can you prove it?

2. $\triangle ABC$ is inscribed in a circle and $\widehat{AB} \cong \widehat{AC}$. Prove that $\triangle ABC$ is isosceles.

[1] Check students' proofs; the proof is similar to the case of two secants.

Students should state that since $\angle B$ and $\angle C$ intercept equal arcs and are equal to half the measure of those arcs, they are congruent. Thus the triangle is isosceles by the definition of isosceles triangles.

The angles appear to be supplementary. Yes, in the quadrilateral formed by the tangents and the radii, the two angles at which the radii intersect the tangents measure 90° , so the remaining pair must be supplementary.
