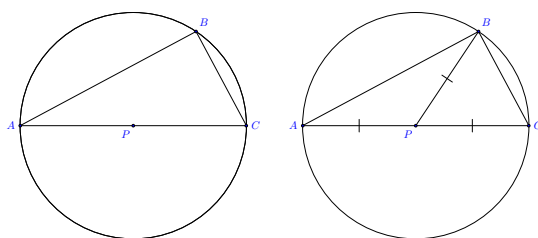


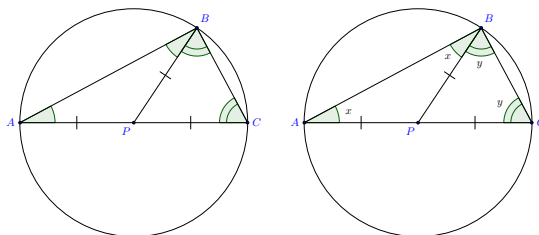
Inscribed Angles

Proofs.

Problem 1 In the figure below, \overline{AB} is a diameter of a circle with center P . Prove that $\angle B$ is a right angle.



- (a) Beginning with the diagram on the left, Natalia draws \overline{PB} and marks the diagram to show segments that she knows to be congruent because each one is a radius of the circle.



- (b) Natalia sees that $\triangle APB$ and $\triangle BPC$ are isosceles triangles, so she marks the figure to show angles that must be congruent. (Note: Do we need a statement or citation of the theorem?)
- (c) In order to do some algebra with these congruent angles, Natalia labels their measures x and y , as shown in the picture on the right.
- (d) She writes an equation for the sum of the angles of $\triangle ABC$:

$$\boxed{x + (x + y) + y} = 180^\circ$$

(Note: Need a question about dividing the equation by 2.)

Inscribed Angles

- (e) Since $m\angle B = \boxed{x + y}$, she concludes that $m\angle B = 90^\circ$. (Note: Should call it $\angle ABC$ because of the new segment, or maybe note this earlier.)
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Problem 2 New problem about relationship between inscribed angle and central angle.

