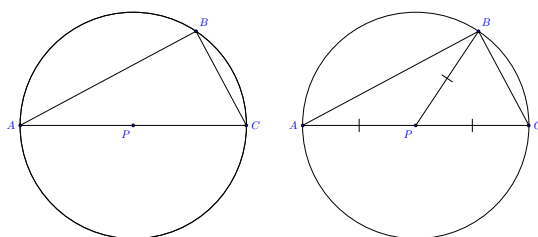


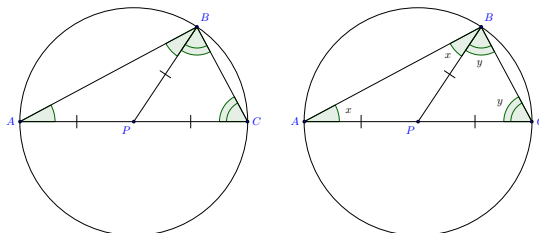
Inscribed Angles

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 congruent angles.
- (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.

- (e) Since $m\angle B = \boxed{x + y}$, she concludes that $m\angle B = 90^\circ$.