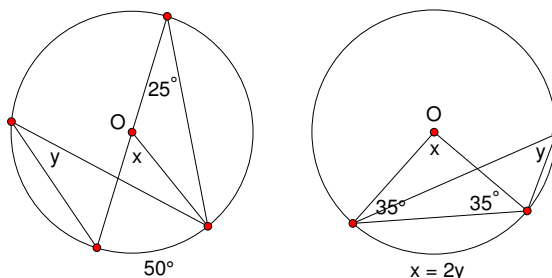
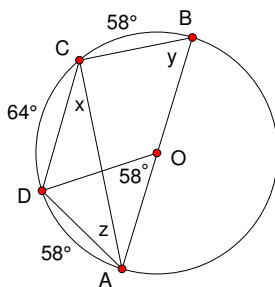


1. In the first diagram, the 25° angle is an inscribed angle so the arc it intercepts must be 50° . y is another inscribed angle intercepting the same arc so $y = 50$ and since x is a center angle intercepting the same arc, $x = 25$.

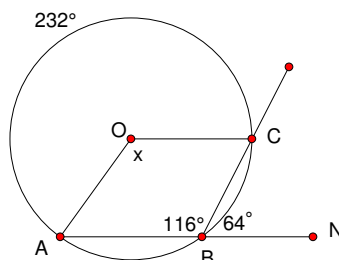
In the second diagram, notice that x is the center angle intercepting the same arc that inscribed angle y intercepts. This tells us that $x = 2y$. Also notice that we have two radii intersecting the arc, forming an isosceles triangle with angles 35° . Thus $x = 110$ and $y = 55$.



2. Since $\angle AOD = 58^\circ$, we know that $\widehat{AD} = 58^\circ$ and then since x is the measure of the inscribed angle intercepting \widehat{AD} , $x = 29$. Using the parallel lines, $\angle DCA \cong \angle CAO$, measuring 29° . Since $\angle CAO$ is an inscribed angle intercepting \widehat{CB} , we know that $\widehat{CB} = 58^\circ$. This tells us that $\widehat{CD} = 180^\circ - 58^\circ - 58^\circ = 64^\circ$. This last piece of information tells us that $z = 32$ and $y = 32 + 29 = 61$.



3. Using the given information we can find $\angle ABC = 116^\circ$. Since $\angle ABC$ is an inscribed angle intercepting major arc \widehat{AC} , we know that major arc $\widehat{AC} = 2 \times 116^\circ = 232^\circ$. This tells us that the minor arc $\widehat{ABC} = 360^\circ - 232^\circ = 128^\circ$. Since minor arc \widehat{ABC} is intercepted by center angle $\angle AOC$, $\angle AOC = 128^\circ$.



4. Since $\angle PAB = 45^\circ$ is an inscribed angle intercepting \widehat{PB} , we know that $\widehat{PB} = 2 \times 45^\circ = 90^\circ$. Since $\angle PQB$ is formed by the intersection of two secants, \overline{PA} and \overline{BR} , $\angle PQB$ must be half the difference of the intercepted arcs. In other words, $25^\circ = \frac{1}{2}(\widehat{AR} - 90^\circ)$. Solving this, we get $\widehat{AR} = 140^\circ$. Since \overline{AB} is a diameter, we know that $\widehat{RB} = 180^\circ - 140^\circ = 40^\circ$. This gives us $\angle BPR = \boxed{20^\circ}$.

