

Flashcards: Angles and Arcs

Directions: Answer the following.

1. Find the measure of angle P. The figure is a circle with central angle OPQ. The measure of arc OQ equals 121 degrees.
2. Find the value of x. The figure is a circle with central angle ZCL and point H on the circle outside of arc ZL. The measure of arc ZHL equals 208 degrees and the measure of angle ZCL equals $24x + 8$ degrees.
3. Find $m\widehat{PQ}$. The figure is a circle with inscribed angle PAQ. The measure of angle A equals 27 degrees.
4. Find the measure of angle ABC. The figure is a circle with tangent AB and secant BC. Point F is outside the angle on the circle. The measure of arc BFC equals 254 degrees.
5. Find the value of r. The figure is a circle with inscribed angle XYZ. The measure of arc XZ equals $5r + 30$. The measure of angle XYZ equals $10r$.
6. What is the measure of arc LM? The figure is a circle with inscribed angle LNM. Angle N equals 61 degrees.

Answers:

1. The measure of angle P equals 121 degrees.
2. The measure of arc ZL equals 360 minus the measure of arc ZHL. The measure of arc ZL equals 360 minus 208 equals 152 degrees. The measure of angle ZCL equals the measure of arc ZL. $24x + 8$ equals 152. $24x$ equals 144. x equals 6.
3. The measure of angle A equals one-half the measure of arc PQ. 27 equals one-half the measure of arc PQ. Multiply both sides by 2. 54 equals the measure of arc PQ.
4. The measure of arc BC equals 360 minus the measure of arc BFC. The measure of arc BC equals 360 minus 254 equals 106 degrees. The measure of angle ABC equals one-half the measure of arc BC equals one-half 106 equals 53 degrees.
5. The measure of angle XYZ equals one-half the measure of arc XZ. $10r$ equals one-half the quantity $5r + 30$. Multiply both sides by 2. $20r$ equals $5r + 30$. $15r$ equals 30. r equals 2.
6. The measure of arc LM equals 2 times the measure of angle N. The measure of arc LM equals 2 times 61 equals 122 degrees.