

Circles: Angles, Arcs, Chords and Tangents

Grade 10 – Geometry math · Test · Standards: G-C.A.1, G-C.A.2

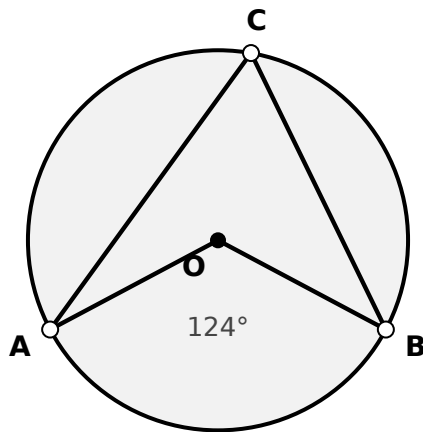
Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points and is designed for 45 minutes. A calculator is allowed. Name each circle relationship you use and show the equation for every unknown.

Standards: G-C.A.1, G-C.A.2 · **Level:** Grade 10 Geometry

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Central and Inscribed (2 points)



$$m\angle AOB = 124^\circ.$$

Find $m\angle ACB$.

Question 2 Semicircle with Algebra (2 points)

AB is a diameter of a circle and C is on the circle. $\angle A = (2x + 9)^\circ$ and $\angle B = (4x + 3)^\circ$. Find x and both angles.

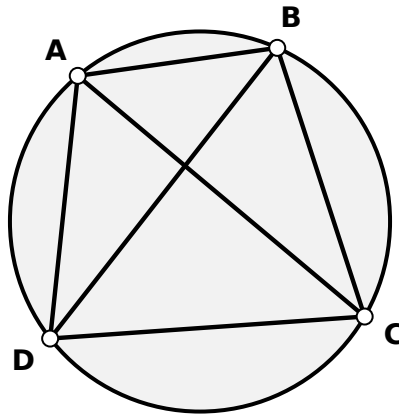
Question 3 Tangent Segment (2 points)

A tangent from P touches a circle with center O at T . The radius is 6 and $OP = 14$. Find PT as a simplified radical.

Question 4 Inscribed Quadrilateral (3 points)

Quadrilateral $ABCD$ is inscribed in a circle. $\angle A = (5x - 8)^\circ$, $\angle C = (3x + 20)^\circ$, $\angle B = (4y + 3)^\circ$ and $\angle D = (6y - 3)^\circ$. Find all four angles.

Question 5 Arcs and Inscribed Angles (3 points)



$\text{Arcs } AB = 64^\circ, BC = 96^\circ, CD = 112^\circ.$

- Find arc DA . (1 point)
- Find $m\angle BAD$. (1 point)
- Find $m\angle ACB$. (1 point)

Question 6 Congruent Chords with Algebra (3 points)

Chords AB and CD are congruent chords of the same circle. Arc $AB = (6x + 4)^\circ$ and arc $CD = (8x - 22)^\circ$. Find x , the measure of arc AB , and an inscribed angle that intercepts arc AB .

Question 7 Chord in a Fountain (3 points)

A circular fountain has a radius of 18 feet. A straight pipe forms a chord 24 feet long. How far is the pipe from the center of the fountain? Give the exact value and a decimal to the nearest tenth.

Question 8 Two Tangents (2 points)

Tangents from P touch a circle with center O at A and B , and $m\angle P = 44^\circ$. Find $m\angle AOB$ and the measure of the major arc AB .