

Unit 7: Circles

ADVANCED · SET 2

Name: _____

Date: _____

Show all work. Use π (leave answers in terms of π where indicated); give exact answers unless a decimal is requested.

1. A chord of a circle is 24 units long and lies 5 units from the center. Find the radius of the circle.

Answer: _____

3. Two secants drawn from an external point intercept arcs of 130° and 42° . Find the measure of the angle formed at the external point (in degrees).

Answer: _____

5. Two chords intersect inside a circle. One chord is divided into segments of length 8 and 15; the other chord is divided into a segment of length 12 and an unknown segment x . Find x .

Answer: _____

7. In a circle of radius 15, an arc has a central angle of 96° . Find the exact arc length in terms of π .

Answer: _____

9. A chord subtends a central angle of 120° in a circle of radius 10. Find the exact length of the chord in simplest radical form.

Answer: _____

2. In a circle, central angle AOB measures 144° . Find the measure of the inscribed angle ACB that subtends the same arc AB.

Answer: _____

4. A tangent and a secant are drawn from an external point. The secant intercepts a far arc of 200° and a near arc of 88° . Find the measure of the angle formed at the external point (in degrees).

Answer: _____

6. From an external point, a tangent segment of length 12 and a secant are drawn. The secant's external segment is 8. Find the length of the entire secant (external plus internal).

Answer: _____

8. Inscribed quadrilateral ABCD has angle $A = (3x + 10)^\circ$ and angle $C = (2x + 20)^\circ$. Find the measure of angle A in degrees.

Answer: _____

10. A tangent segment from external point P touches a circle at T. The line from P through the center hits the circle at nearest point A ($PA = 4$) and farthest point B. If $PT = 12$, find the radius of the circle.

Answer: _____

11. An inscribed angle intercepts an arc, and the tangent-chord angle at one endpoint of that chord measures 65° . Find the measure of the intercepted arc in degrees.

Answer: _____