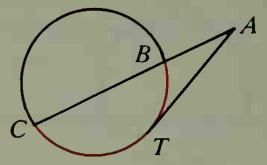
In Exercises 15–17 $\overline{AT}$ is a tangent.

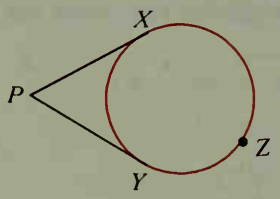


15. If $m\overset{\frown}{CT} = 110$ and $m\overset{\frown}{BT} = 50$, then $m\angle A =$ ___?___.

16. If $m\angle A = 28$ and $m\overset{\frown}{BT} = 46$, then $m\overset{\frown}{CT} =$ ___?___.

17. If $m\angle A = 35$ and $m\overset{\frown}{CT} = 110$, then $m\overset{\frown}{BT} =$ ___?___.

In Exercises 18–21 $\overline{PX}$ and $\overline{PY}$ are tangents.



18. If $m\overset{\frown}{XZY} = 250$, then $m\angle P =$ ___?___.

19. If $m\overset{\frown}{XY} = 90$, then $m\angle P =$ ___?___.

20. If $m\overset{\frown}{XY} = t$, then $m\overset{\frown}{XZY} =$ ___?___ and $m\angle P =$ ___?___ in terms of t.

21. If $m\angle P = 65$, then $m\overset{\frown}{XY} =$ ___?___.

B **22.** A secant and a tangent to a circle intersect in a 42° angle. The two arcs of the circle intercepted by the secant and tangent have measures in a 7:3 ratio. Find the measure of the third arc.

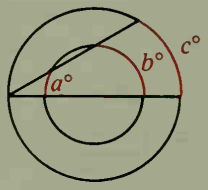
23. A quadrilateral circumscribed about a circle has angles of 80°, 90°, 94°, and 96°. Find the measures of the four nonoverlapping arcs determined by the points of tangency.

24. In the inscribed quadrilateral $ABCD$, the sides $\overline{AB}$, $\overline{BC}$, and $\overline{CD}$ are congruent. $\overrightarrow{AB}$ and $\overrightarrow{DC}$ meet at a 32° angle. Find the measures of the angles of $ABCD$.

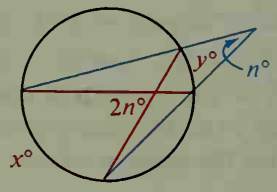
25. Prove Case II of Theorem 9-10. (*Hint*: See Classroom Exercise 10. Draw a figure like the second one shown below the theorem on page 358. Label your figure, and draw the chord joining the points of tangency.)

26. Prove Case III of Theorem 9-10.

27. Write an equation involving a, b, and c.



28. Find the ratio $x:y$.



29. Isosceles $\triangle ABC$ with base $\overline{BC}$ is inscribed in a circle. P is a point on $\overset{\frown}{AC}$ and $\overrightarrow{AP}$ and $\overrightarrow{BC}$ meet at Q. Prove that $\angle ABP \cong \angle Q$.

C **30.** $\overline{PT}$ is a tangent. It is known that $80 < m\overset{\frown}{RS} < m\overset{\frown}{ST} < 90$. State as much as you can about the measure of $\angle P$.