page 738 Chapter 12 Extra Practice

5. Tangents to a ⊙ from a point outside the ⊙ are ≅, so $AS = AP$, $BP = BQ$, $CQ = CR$, and $DR = DS$. By the Segment Add. Post. and various Props. or =,

$AB + DC =$
$AP + BP + DR + CR =$
$AS + BQ + DS + CQ =$
$BQ + CQ + AS + DS =$
$BC + AD$

11. $a = 38$; $b = 52$; $c = 104$; $d = 90$
12. $a = 105$; $b = 100$
13. $a = 55$; $b = 72$; $c = 178$; $d = 89$
14. Yes. Each side of the polygon is a chord of the circle and the ⊥ bis. of any chord contains the center of the circle.

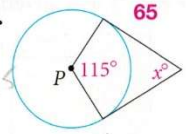
Chapter 12

Extra Practice: Skills, Word Problems,

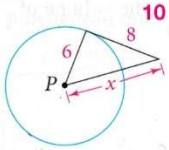
Lesson 12-1

Algebra **Assume that lines that appear to be tangent are tangent. P is the center of each circle. Find the value of x.**

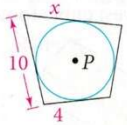
1. 65



2. 10



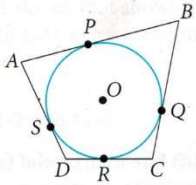
3. 6



4.

5. **Given:** Quadrilateral $ABCD$ is circumscribed about $\odot O$.

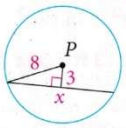
Prove: $AB + DC = BC + AD$ See margin.



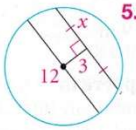
Lessons 12-2 and 12-3

Algebra **Find the value of each variable. If your answer is not a whole number, round it to the nearest tenth.** 10–12. See margin.

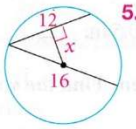
6. 14.8



7. 5.2

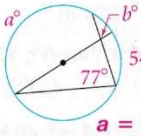


8. 5.3



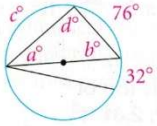
9.

10.

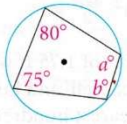


$a = 154$; $b = 76$

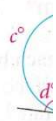
11.



12.



13.



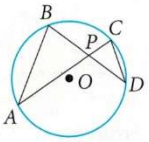
14. A polygon is inscribed in a circle. Are the perpendicular bisectors of the sides of the polygon concurrent? Explain. See margin.

15. A circle has a diameter of 4 units. A chord parallel to a diameter is 1.5 units from the center of the circle. The endpoints of the diameter and the chord are the vertices of an isosceles trapezoid. What is the distance from the center of the circle to each leg of the trapezoid? Round to the nearest hundredth. 1.82 units

16. **Given:** $\angle A$ and $\angle D$ are inscribed angles in $\odot O$ that intercept $\overset{\frown}{BC}$. $\overline{BD}$ and $\overline{AC}$ intersect at P.

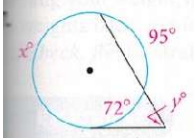
Prove: $\triangle APB \sim \triangle DPC$

$\angle A \cong \angle D$ since they both intercept $\overset{\frown}{BC}$.
$\angle BPA \cong \angle CPD$ because they are vertical ∠s.
$\triangle APB \sim \triangle DPC$ by AA ~.

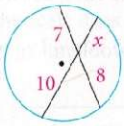


sson 12-4

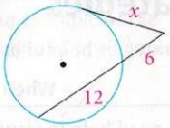
gebra **Assume that lines that appear to be tangent are tangent. Find the value of ch variable. If your answer is not a whole number, round it to the nearest tenth.** 17–20. See margin.



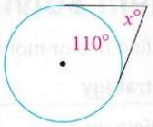
18.

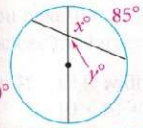


19.



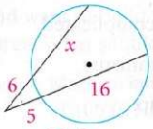
20.





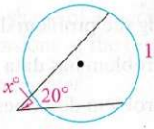
$x = 112.5$; $y = 67.5$

22.



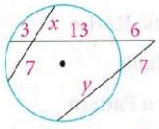
11.5

23.



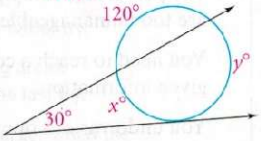
42.5

24.

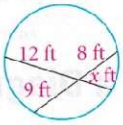


$x \approx 5.6$; $y \approx 11.9$

. The outer rim of a circular garden will be planted with three colors of tulips. The landscaper has stretched two strings from a point P to help workers see how much of the circular rim should be planted with each color. Use the information in the figure at the right to find x and y. 90; 150



. Planks are placed across the circular pool shown in the figure at the right. What is the length of the longest plank? 18 ft



sson 12-5

rite the standard equation for each circle with center P.

. $P = (0, 0)$; $r = 4$ $x^2 + y^2 = 16$

. $P = (9, -3)$; $r = 7$ $(x - 9)^2 + (y + 3)^2 = 49$

. $P = (-6, -2)$; through $(-8, 1)$ $(x + 6)^2 + (y + 2)^2 = 13$

28. $P = (0, 5)$; $r = 3$ $x^2 + (y - 5)^2 = 9$

30. $P = (-4, 0)$; through $(2, 1)$ $(x + 4)^2 + y^2 = 37$

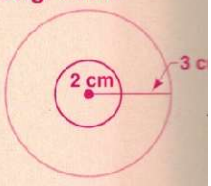
32. $P = (-1, -3)$; $r = 3$ $(x + 1)^2 + (y + 3)^2 = 9$

. When a coordinate grid is imposed over a map, the location of a radio station is given by (113, 215). A town located at (149, 138) is at the outermost edge of the circular region where clear reception is assured.

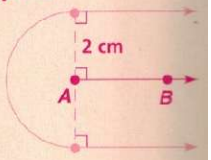
a. Write an equation that describes the boundary of the clear reception region. $(x - 113)^2 + (y - 215)^2 = 85^2$

b. If the radio station boosts power to increase the size of the clear-reception region by a factor of 4, what will be the equation for the new boundary for clear reception? $(x - 113)^2 + (y - 215)^2 = 170^2$

17. $x = 193$; $y = 60.5$
18. 5.6
19. ≈ 10.4
20. 70
34. a circle of radius 5 concentric with th orig. circle



35. two rays $\parallel$ to and 2 from $\overline{AB}$, and the semicircle of radiu cm with center A, pt. B



36. a sphere of radius 1.5 in., and center