Lesson
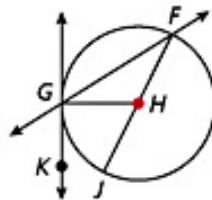**11-1**

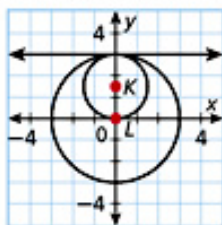Identify each line or segment that intersects each circle.
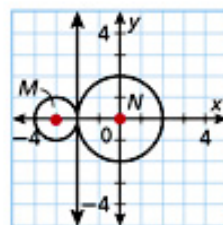
1.
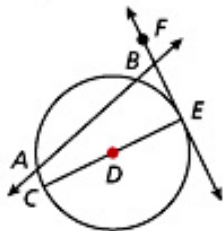
2.

Find the length of each radius. Identify the point of tangency and write the equation of the tangent line at this point.
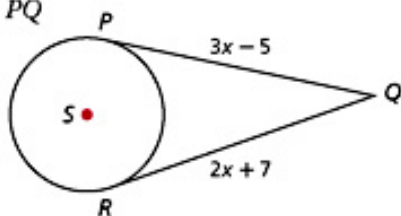
3.

4.

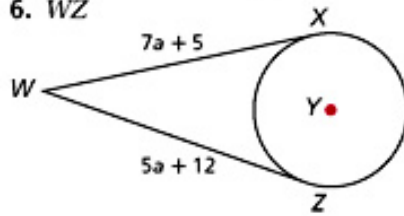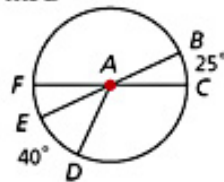The segments in each figure are tangent to the circle. Find each length.

5. PQ

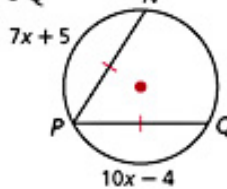
6. WZ

Lesson
11-2

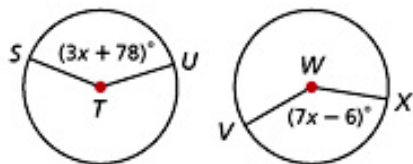Find each measure. Round to the nearest tenth, if necessary.
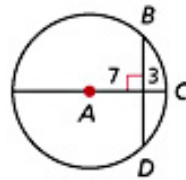
7. $m\widehat{FB}$

8. PQ

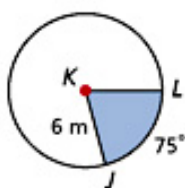**9.** $\odot T \cong \odot W$. Find $m\angle VWX$.
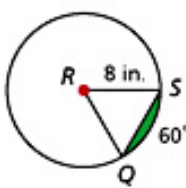

10. BD

Lesson
11-3

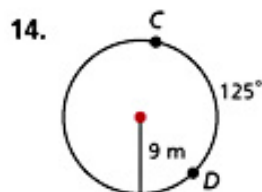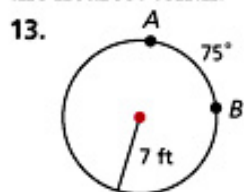Find the area of each sector or segment. Round to the nearest tenth.

11.

12.

Find each arc length. Give your answers in terms of π and rounded to the nearest tenth.
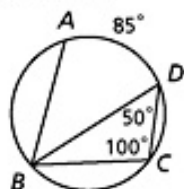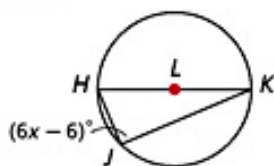
13.

14.

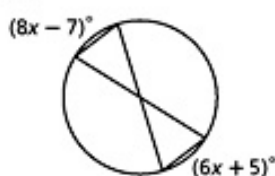**Find each measure or value. Round to the nearest tenth, if necessary.**

15. m∠ABD

16. x

17. x

18. angle measures of HJKL
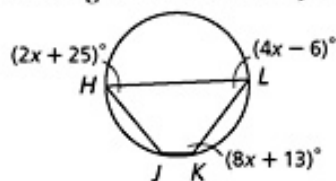
19. m$\widehat{DF}$
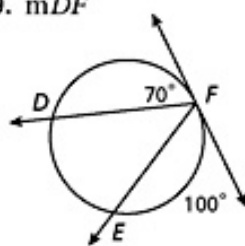
20. m∠JMK
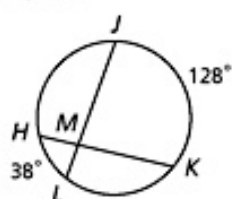
21. m∠RTQ

22. x
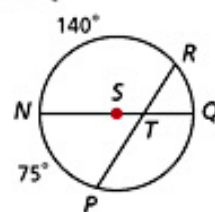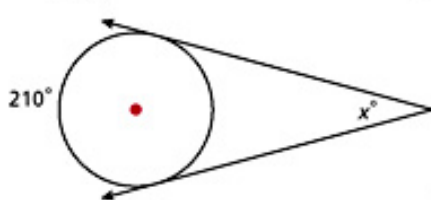
23. m∠AFE
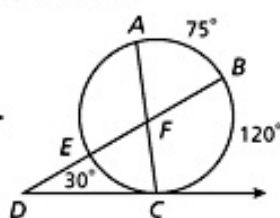
24. m$\widehat{GL}$
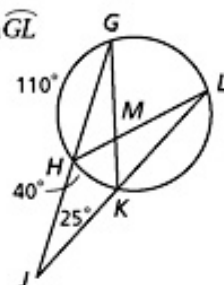
Find the value of the variable. Round to the nearest tenth, if necessary.
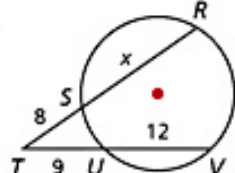
25.

26.
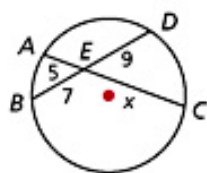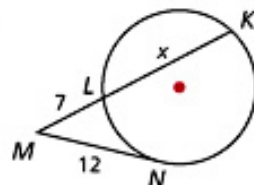
27.

Write the equation of each circle.

28. ⊙A with center $A(2, -3)$ and radius 6

29. ⊙B that passes through $(3, 4)$ and has center $B(-2, 1)$

Graph each equation.

30. $(x + 3)^2 + (y - 4)^2 = 1$

31. $x^2 + (y + 4)^2 = 16$