

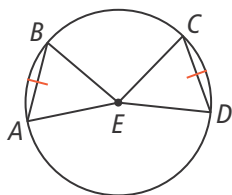


UNDERSTAND

12. **Construct Arguments** Write a paragraph proof of Theorem 10-3.

Given: $\overline{AB} \cong \overline{CD}$

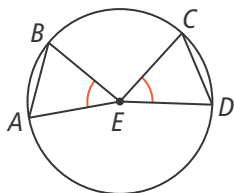
Prove: $\angle AEB \cong \angle CED$



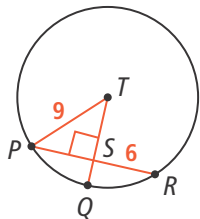
13. **Construct Arguments** Write a two-column proof of the Converse of Theorem 10-3.

Given: $\angle AEB \cong \angle CED$

Prove: $\overline{AB} \cong \overline{CD}$



14. **Error Analysis** What is Ashton's error?



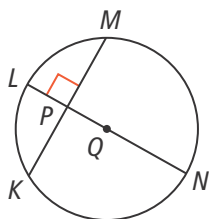
$$\begin{aligned} TS &= \sqrt{PR^2 - PS^2} \\ &= \sqrt{12^2 - 9^2} \\ &\approx 7.9 \end{aligned}$$



15. **Construct Arguments** Write a proof of Theorem 10-6.

Given: $\overline{LN}$ is a diameter of $\odot Q$; $\overline{LN} \perp \overline{KM}$

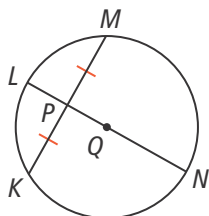
Prove: $\overline{KP} \cong \overline{MP}$



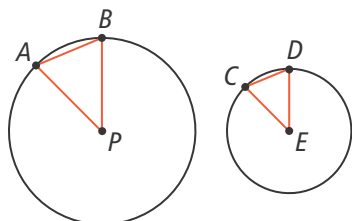
16. **Construct Arguments** Write a proof of the Converse of Theorem 10-6.

Given: $\overline{LN}$ is a diameter of $\odot Q$; $\overline{KP} \cong \overline{MP}$

Prove: $\overline{LN} \perp \overline{KM}$



17. **Higher Order Thinking** $\triangle ABP \sim \triangle CDE$. How do you show that $\overline{AB} \cong \overline{CD}$?



PRACTICE

For Exercises 18–21, in $\odot B$, $m\angle VBT = m\widehat{PR} = 90^\circ$, and $QR = TU$. SEE EXAMPLES 1 AND 2

18. Find $m\angle PBR$.

19. Find $m\widehat{TV}$.

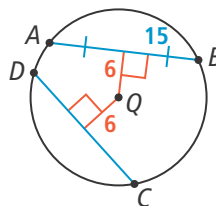
20. Which angle is congruent to $\angle QBR$?

21. Which segment is congruent to $\overline{TV}$?

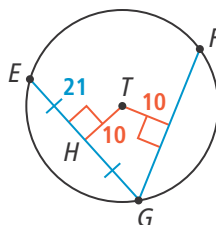
22. Construct a square inscribed in a circle. How is drawing an inscribed square different from drawing an inscribed hexagon or triangle?

SEE EXAMPLE 4

23. Find CD . SEE EXAMPLE 3



24. Find FG . SEE EXAMPLE 3



25. A chord is 12 cm long. It is 30 cm from the center of the circle. What is the radius of the circle? SEE EXAMPLE 5

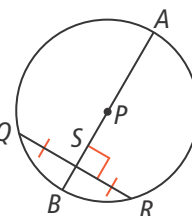
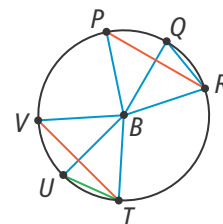
26. The diameter of a circle is 39 inches. The circle has two chords of length 8 inches. What is the distance from each chord to the center of the circle?

27. A chord is 4 units from the center of a circle. The radius of the circle is 5 units. What is the length of the chord?

28. Write a proof of Theorem 10-7.

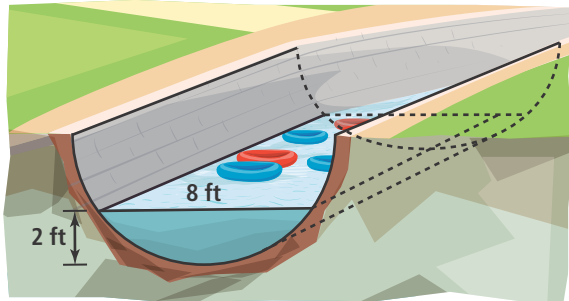
Given: $\overline{QR}$ is a chord in $\odot P$; $\overline{AB}$ is the perpendicular bisector of $\overline{QR}$.

Prove: $\overline{AB}$ contains P .

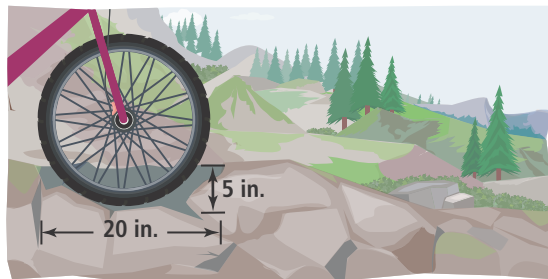


APPLY

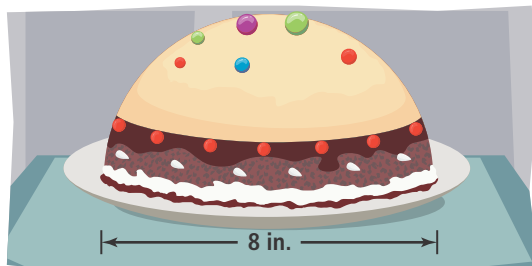
29. **Mathematical Connections** Nadia designs a water ride and wants to use a half-cylindrical pipe in the construction. If she wants the waterway to be 8 ft wide when the water is 2 ft deep, what is the diameter of the pipe?



30. **Model With Mathematics** A bike trail has holes up to 20 in. wide and 5 in. deep. If the diameter of the wheels of Anna's bike is 26 in., can she ride her bike without the wheels hitting the bottom of the holes? Explain.



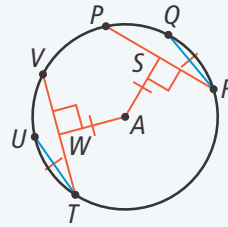
31. **Make Sense and Persevere** The bottom of a hemispherical cake has diameter 8 in.



- If the cake is sliced horizontally in half so each piece has the same height, would the top half fit on a plate with diameter 6 in.? Explain.
- If the cake is sliced horizontally in thirds so each piece has the same height, would the top third fit on a plate with diameter 5 in.? Explain.

ASSESSMENT PRACTICE

32. Which must be true? Select all that apply.



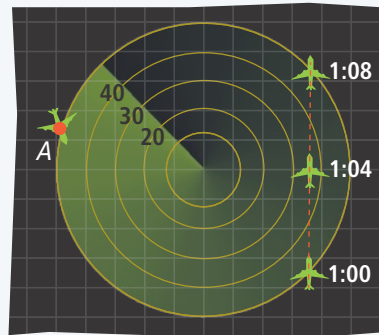
- Ⓐ $\widehat{QR} \cong \widehat{TU}$ Ⓒ $VW = AS$
 Ⓑ $PR = TV$ Ⓓ $PS = SR$

33. **SAT/ACT** The radius of the semicircle is r , and $CD = \frac{3}{4} \cdot AB$. What is the distance from the chord to the diameter?



- Ⓐ $\frac{5}{4}r$ Ⓑ $\frac{\sqrt{7}}{4}r$ Ⓒ $\frac{\sqrt{7}}{4}\pi r$ Ⓓ $\frac{5}{4}\pi r$

34. **Performance Task** The radius of the range of a radar is 50 miles. At 1:00 P.M., a plane enters the radar screen flying due north. At 1:04 P.M. the aircraft is due east of the radar. At 1:08 P.M., the aircraft leaves the screen. The plane is moving at 8 miles per minute.



Part A What distance does the plane fly on the controller's screen?

Part B What is the distance of the plane from the radar at 1:04 P.M.?

Part C Another plane enters the screen at point A at 1:12 P.M. and flies in a straight line at 9 miles per minute. If it gets no closer than 40 miles from the radar, at what time does it leave the screen? Explain.