PRACTICE & PROBLEM SOLVING

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Practice Tutorial

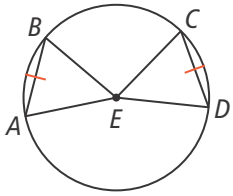
Additional Exercises Available Online

UNDERSTAND

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

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

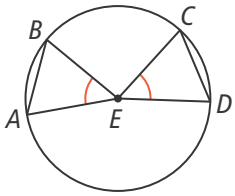
Prove: $\angle AEB \cong \angle CED$



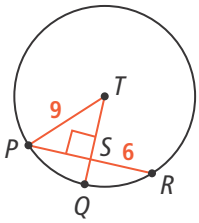
13. Construct Arguments Write a two-column proof of the Converse of Theorem 10-3.

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

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



14. Error Analysis What is Ashton's error?

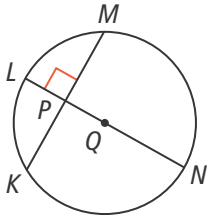


$TS = \sqrt{PR^2 - PS^2}$
$= \sqrt{12^2 - 9^2}$
≈ 7.9 ✗

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

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

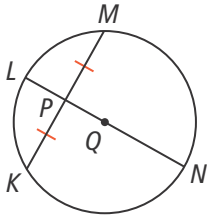
Prove: $\overline{KP} \cong \overline{MP}$



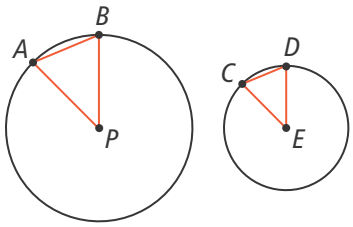
16. Construct Arguments Write a proof of the Converse of Theorem 10-6.

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

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

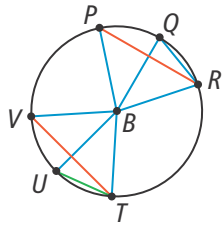


17. Higher Order Thinking $\triangle ABP \sim \triangle CDE$. How do you show that $\overset{\frown}{AB} \cong \overset{\frown}{CD}$?



PRACTICE

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



18. Find $m\angle PBR$.

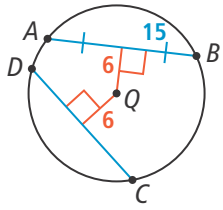
19. Find $m\overset{\frown}{TV}$.

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

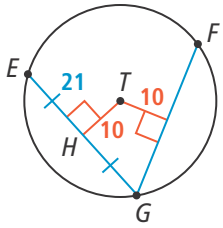
21. Which segment is congruent to $\overline{TV}$?

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

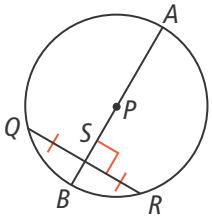
26. The diameter of a circle is 39 inches. The circle has two chords of length 8 inches. What is the distance from each chord to the center of the circle?

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.



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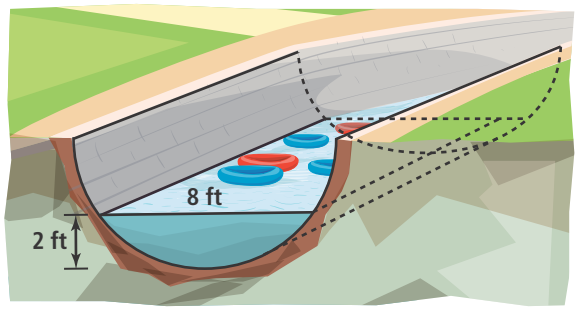
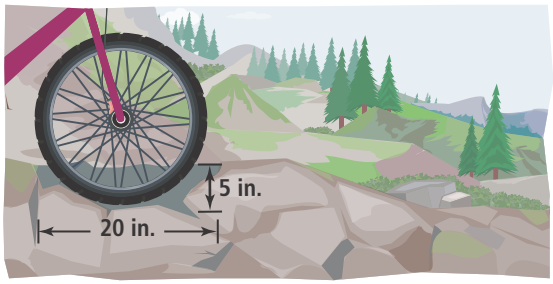
APPLY

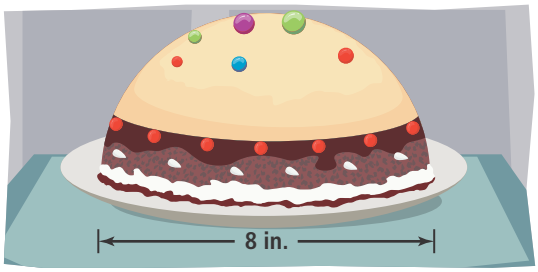
29. Mathematical Connections Nadia designs a water ride and wants to use a half-cylindrical pipe in the construction. If she wants the waterway to be 8 ft wide when the water is 2 ft deep, what is the diameter of the pipe?



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.

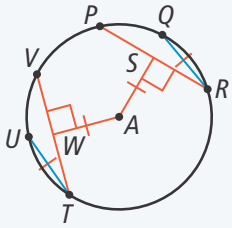


a. If the cake is sliced horizontally in half so each piece has the same height, would the top half fit on a plate with diameter 6 in.? Explain.

b. 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.

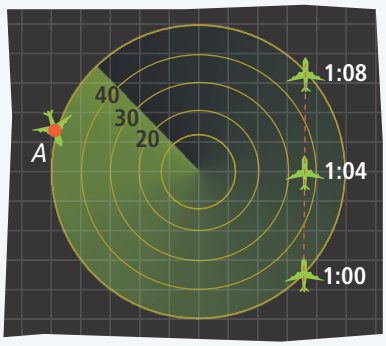


Ⓐ $\overset{\frown}{QR} \cong \overset{\frown}{TU}$
Ⓒ $VW = AS$
Ⓑ $PR = TV$
Ⓓ $PS = SR$

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.