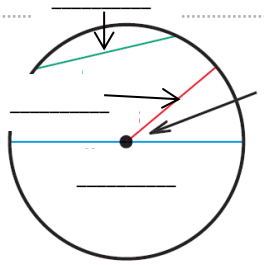
Geometry

10.1 Lines and Segments that Intersect Circles



Circle

- All the _____ a given _____ from a central _____ in a plane
- Named by the _____

_____ (__) – the _____ from the _____ of the circle to the _____.

_____– line _____ that connects two _____ on a circle.

_____ (__) – _____ that goes through the _____ of the circle (longest chord = 2 radii)

- ____ = _____

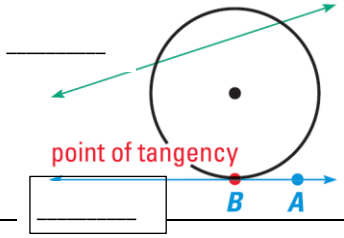
What is the radius of a circle if the diameter is 16 feet?

Secant

- Line that _____ a circle _____

Tangent

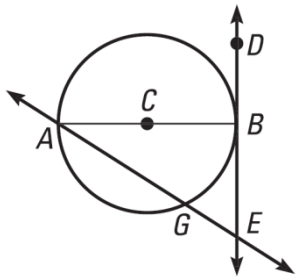
- Line that _____ a circle _____



What word best describes $\overline{AG}$?

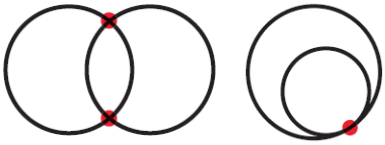
What word best describes $\overline{CB}$?

Name a tangent and a secant.



Two circles can intersect in…

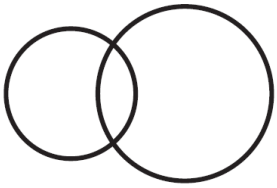
- _____ points
- _____ point
- _____ points

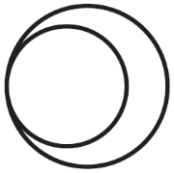


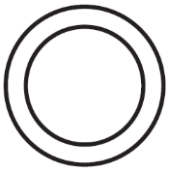
Common tangents

Lines _____ to _____ circles

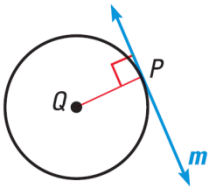
How many common tangents do the circles have?

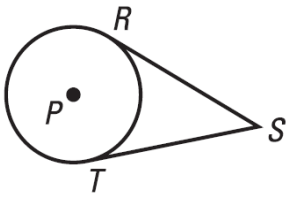






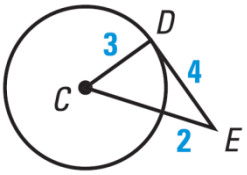
Tangent lines are _____ to _____.



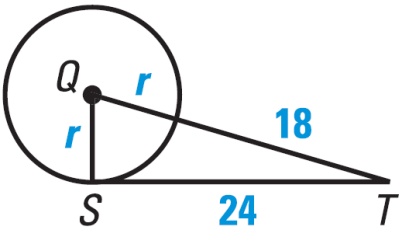


Tangent segments from the same _____ are _____.

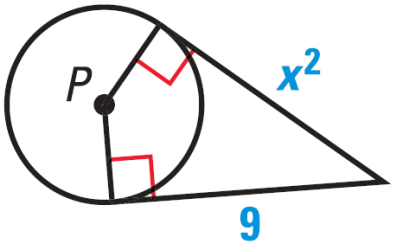
Is $\overline{DE}$ tangent to $\odot C$?



$\overline{ST}$ is a tangent to $\odot Q$. Find the value of r.



Find the value of x.



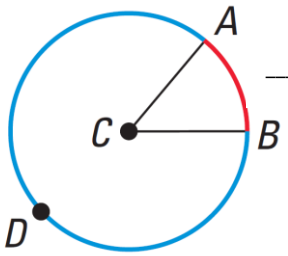
Assignment: 516 #2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 26, 28, 32, 38, 45, 46, 51, 52, 53 = 20 total

Geometry

10.2 Finding Arc Measures

- There are _____ in a complete _____.
- Central Angle – Angle whose _____ is the _____ of the _____

Arcs

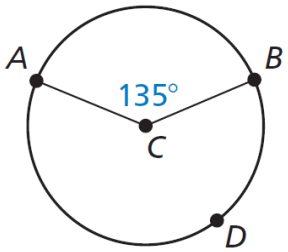


_____

_____

- An _____ is a portion of a _____ (curved line)
- A central angle cuts a _____ into _____ arcs
- Measures of arcs are the _____ of the _____ angle
- Minor arc – _____ of the two arcs
- Major arc – _____ of the two arcs
- Named _____ or _____
  - use _____ endpoints to identify _____ arc
  - use _____ letters to identify _____ arc

Name the minor arc and find its measure. Then name the major arc and find its measure.

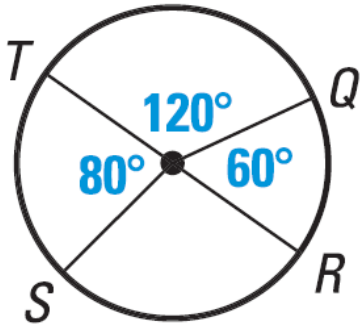


Identify as major arc, minor arc, or semicircle. Find the measure.

$\overset{\frown}{TQ}$

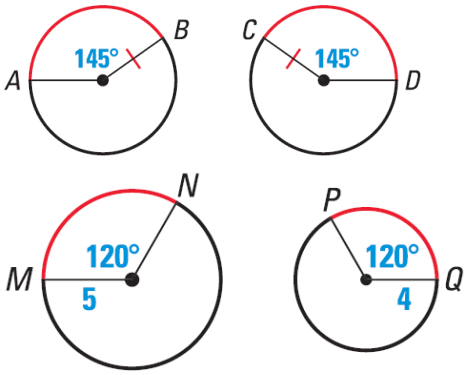
$\overset{\frown}{TQR}$

$\overset{\frown}{QRT}$



- Semicircle – arc if the central angle is _____
- Similar Circles – _____ circles are _____
- Congruent circles – same _____
- Congruent arcs – same _____ and _____

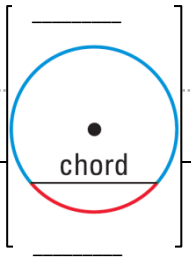
Tell whether the red arcs are congruent.



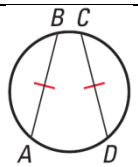
Assignment: 524 #2, 4, 6, 8, 9, 10, 12, 14, 16, 18, 19, 20, 22, 24, 27, 33, 35, 39, 41, 42 = 20 total

Geometry

10.3 Using Chords

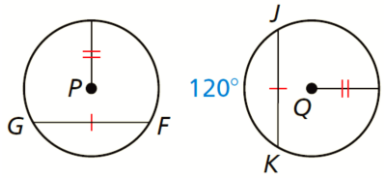


Chords divide a circle into a _____ and _____ arcs.

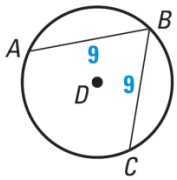


In the _____ circle, or _____ circles, two _____ arcs are _____ iff their _____ are ≅.

Find $m\widehat{FG}$.

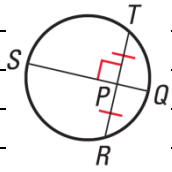


If $m\widehat{AB} = 110°$, find $m\widehat{BC}$.



If one chord is _____ of another _____, then the _____ chord is a _____.

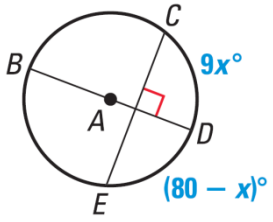
If a diameter is _____ to a _____, then it _____ the _____ and its ____.__



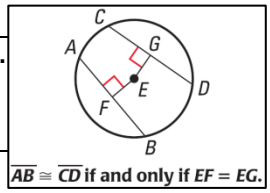
Find the measure of the indicated arc.

$\widehat{CD}$

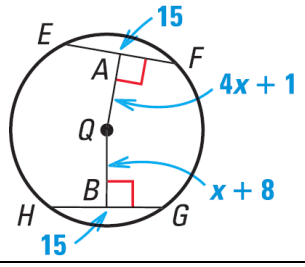
$\widehat{CE}$



In the same _____, or ≅ circles, 2 _____ are ≅ iff they are _____ from the _____.



Find the value of x.



Assignment: 531 #1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 15, 16, 20, 22, 24, 25, 26, 27, 28 = 20 total

Geometry

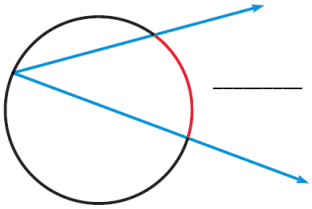
10.4 Inscribed Angles and Polygons

Inscribed Angle

- An angle whose _____ is on the _____ of a circle and is _____ the circle.

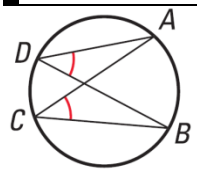
Intercepted Arc

- The arc of the circle that is _____ the _____.



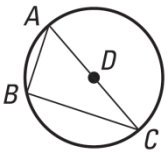
The measure of an _____ _____ is _____ the measure of the _____ arc.

If _____ inscribed angles of the same or congruent circles intercept _____ arcs, then the angles are _____.

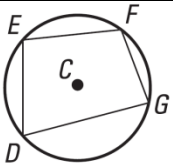


If an inscribed angle of a circle intercepts a _____, then the angle is a _____ angle

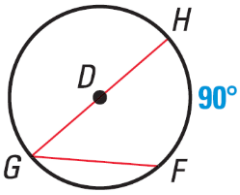
½ 180 (semicircle) = 90

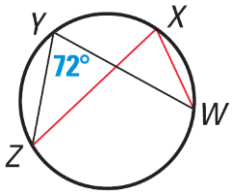


If a _____ is inscribed in a circle, then the _____ angles are _____.

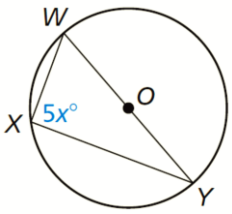


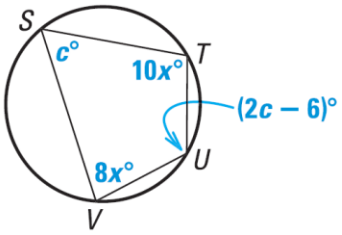
Find the measure of the red angle.





Find the value of each variable.





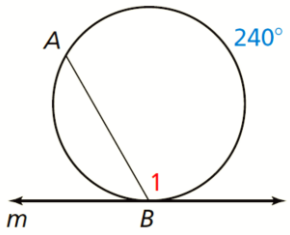
Assignment: 538 #2, 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 16, 22, 30, 32, 34, 36, 38, 39, 43 = 20 total

Geometry

10.5 Apply Other Angle Relationships in Circles

If a _____ and a _____ intersect at the point of _____, then the measure of each angle formed is _____ the measure of its _____.

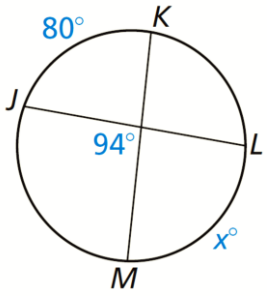
Find $m\angle 1$.



Angles Inside the Circle Theorem

If two _____ intersect in the _____ of a circle, then the measure of an _____ formed is _____ the _____ of the measures of the _____ by the _____ and its _____.

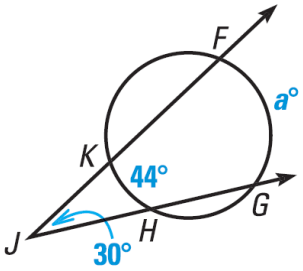
Find the value of x.



Angles Outside the Circle Theorem

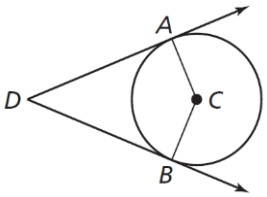
If two _____, _____, or _____ intersect in the _____ of a circle, then the measure of the _____ formed is _____ the _____ of the measures of the _____.

What is the value of a?



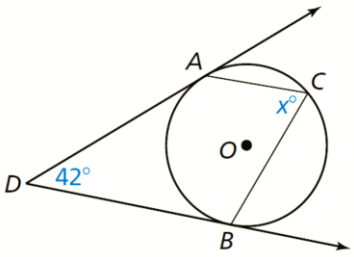
Circumscribed Angles Theorem

The measure of a _____ angle is equal to _____ minus the measure of the _____ angle that intercepts the same _____.



_____

What is the value of x?



Assignment: 546 #2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 17, 29, 32, 35, 36, 37, 39 = 20 total

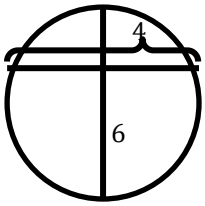
Geometry

10.6 Segment Relationships in Circles

Segments of Chords Theorem

If two _____ intersect _____ a circle, then the _____ of the measures of the _____ of the chords are _____.

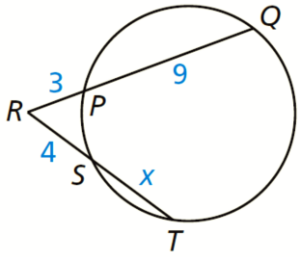
A person is stuck in a water pipe with unknown radius. He estimates that surface of the water makes a 4 ft chord near the top of the pipe and that the water is 6 ft deep. How much room is available for his head?



Segments of Secants Theorem

If two _____ are drawn to a circle from an _____ point, then the _____ of the measures of one _____ segment and its _____ secant segment is _____ to the product of the measures of the other secant segment and its external secant segment.

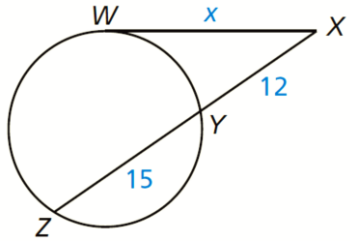
Find *x* in the diagram.



Segments of Secants and Tangents Theorem

If a _____ segment and a _____ segment are drawn to a circle from an _____ point, then the _____ of the measure of the _____ segment is equal to the _____ of the measures of the _____ segment and its _____ secant segment.

Find *x* in the diagram.



Assignment: 553 #2, 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 19, 25, 28, 29, 30, 31 = 20 total

Geometry

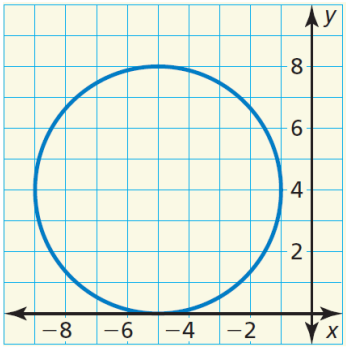
10.7 Circles in the Coordinate Plane

Standard equation of a circle

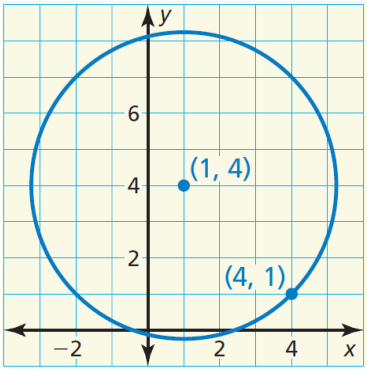
_____

(h, k) is the _____ of the circle and r is the _____

Write the equation of the circle in the graph.



Write the standard equation of the circle.



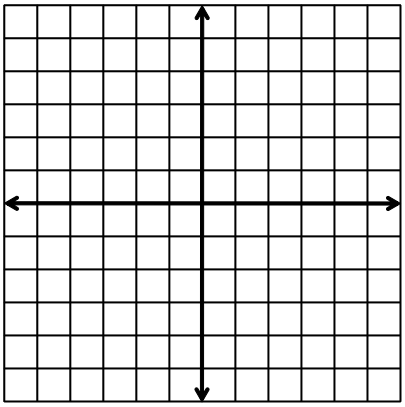
Graph Circles

Plot the _____

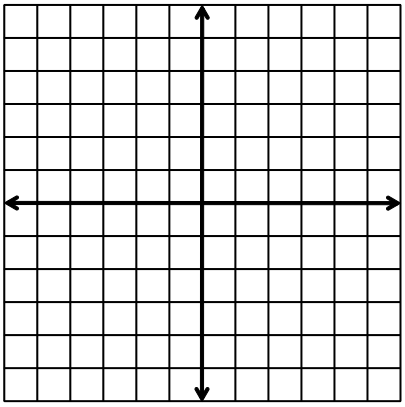
Move every _____ the distance _____ from the center.

Draw a _____.

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



The point (1, 4) is on a circle centered at the origin. Prove or disprove that the point $(3, \sqrt{7})$ is on the circle.

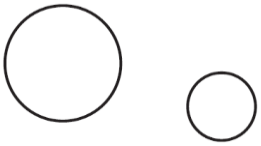


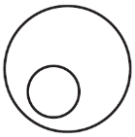
Assignment: 559 #2, 4, 6, 8, 10, 12, 13, 14, 19, 20, 23, 24, 26, 28, 30, 34, 35, 36, 38, 41 = 20 total

Name: _____

Geometry Chapter 10 Review

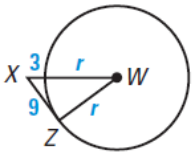
Tell how many common tangents the circles have and draw them.

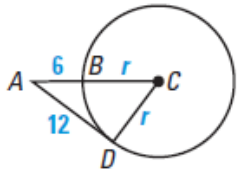
1. 

2. 

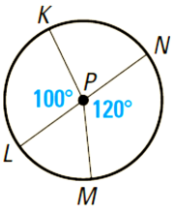
3. 

Find the value of the variable. Assume point on the circle are points of tangency.

4. 

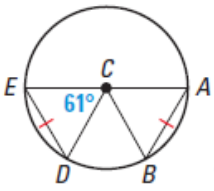
5. 

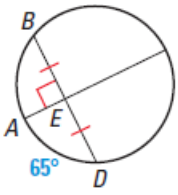
Use the diagram to find the measures of the indicated arc and state whether the arc is *major*, *minor*, or *semicircle*.

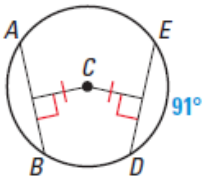


6. $\overset{\frown}{KL}$
7. $\overset{\frown}{LN}$
8. $\overset{\frown}{KM}$
9. $\overset{\frown}{KN}$
10. $\overset{\frown}{KNM}$

Find the measure of $\overset{\frown}{AB}$.

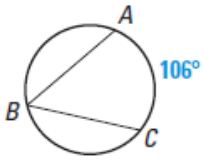
11. 

12. 

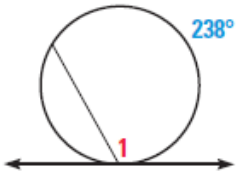
13. 

Find the indicated measure.

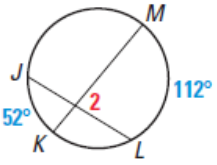
14. $m\angle ABC$



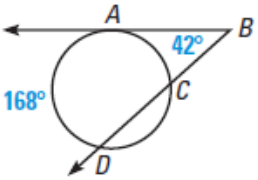
15. $m\angle 1$



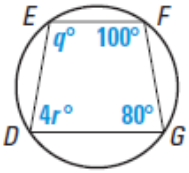
16. $m\angle 2$



17. $m\overset{\frown}{AC}$

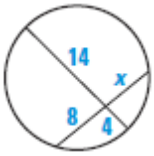


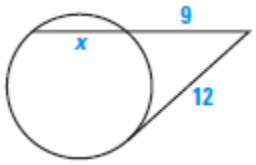
18. q and r

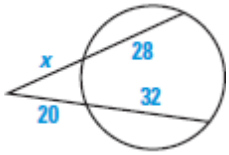


Name: _____

Find the value of *x*. Round decimal answers to the nearest tenth.

19. 

20. 

21. 

Use the given information to write the standard equation for the circle.

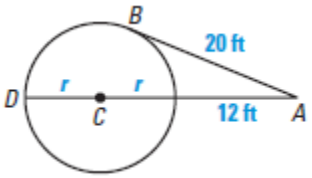
22. The center is $(0, -2)$, and the radius is 4 units.

23. The center is $(2, -3)$, and a point on the circle is $(7, -8)$.

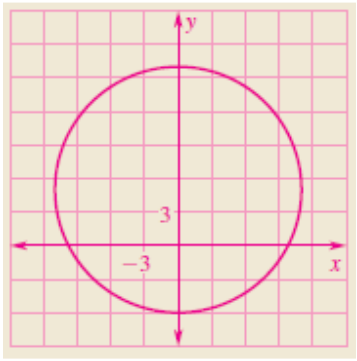
Graph the equation.

24. $x^2 + (y - 5)^2 = 121$

25. A local park has a circular ice skating rink. You are standing at point A, about 12 feet from the edge of the rink. The distance from you to a point of tangency on the rink is about 20 feet. Estimate the radius of the rink.



Answers

1. 4
2. 0
3. 1
4. 12
5. 9
6. 100°; minor
7. 180°; semicircle
8. 160°; minor
9. 80°; minor
10. 200°; major
11. 61°
12. 65°
13. 91°
14. 53°
15. 119°
16. 82°
17. 84°
18. 100, 20
19. 7
20. 7
21. 21.2
22. $x^2 + (y + 2)^2 = 16$
23. $(x - 2)^2 + (y + 3)^2 = 50$
24. 

25. $10\frac{2}{3}\ ft$