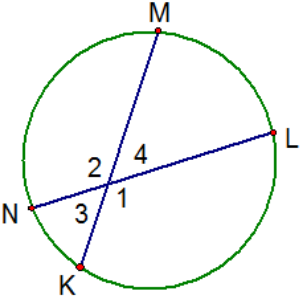
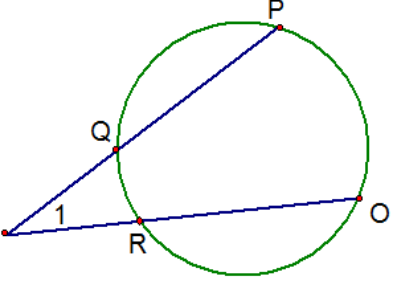
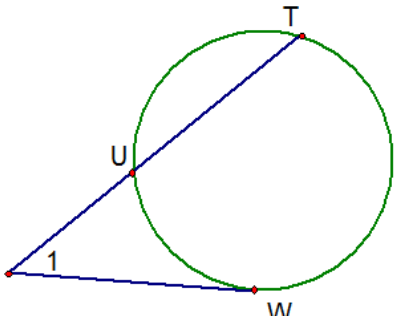
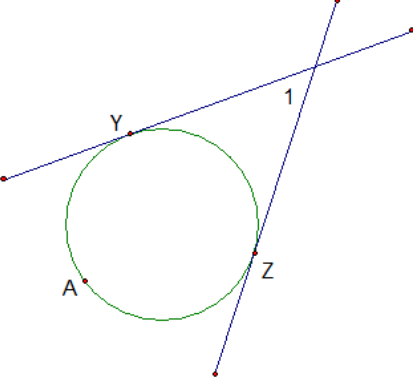
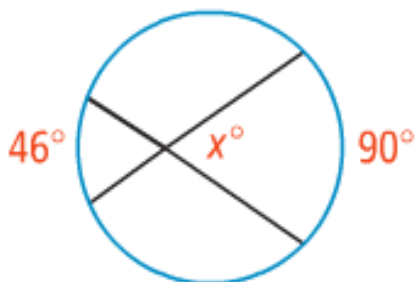


12.4 Angle Measures and Segment Lengths

	$\angle 1 = \frac{1}{2} (\widehat{KL} + \widehat{MN})$ $\angle 1 = \angle 2$ $\angle 3 = \frac{1}{2} (\widehat{KN} + \widehat{ML})$ * angle inside add arcs	The measure of an angle formed by 2 chords is $\frac{1}{2}$ the sum of the intercepted arcs
	$\angle 1 = \frac{1}{2} (\widehat{PO} - \widehat{QR})$ * angle outside subtract arc * big - small arc	The measure of an angle formed by 2 tangents is $\frac{1}{2}$ the difference of the intercepted arcs
	$\angle 1 = \frac{1}{2} (\widehat{TW} - \widehat{UW})$ * angle outside subtract arcs * big - small arc	The measure of an angle formed by a secant & tangent is $\frac{1}{2}$ the difference of the intercepted arcs.
	$\angle 1 = \frac{1}{2} (\widehat{YZ} - \widehat{AZ})$ * angle outside subtract arcs * big - small arc	↓ "ditto"

Finding Angle Measures

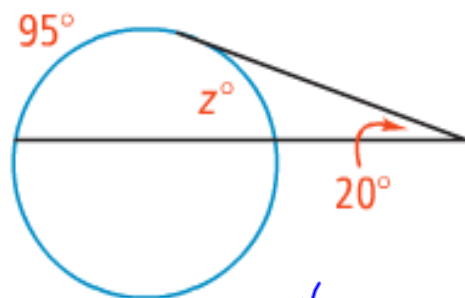


$x \rightarrow$ inside angle, add

$$x = \frac{1}{2}(46 + 90)$$

$$x = \frac{1}{2}(136)$$

$$x = 68^\circ$$



$z \rightarrow$ small arc

$20 \rightarrow$ outside angle subtract

$$2(20) = \frac{1}{2}(95 - z)$$

$$40 = 95 - z$$

$$-95 + 95$$

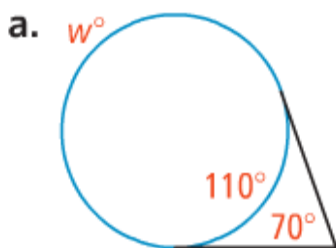
$$-55 = -z$$

$$z = 55^\circ$$

Finding Angle Measures

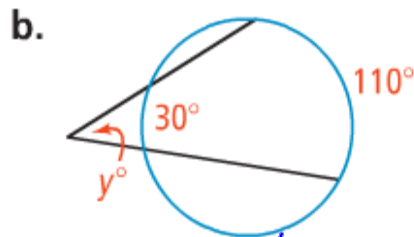
HW Pg. 794 8-14

What is the value of each variable?



$$w = 360 - 110$$

$$w = 250^\circ$$

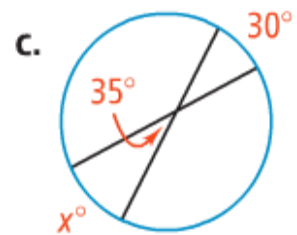


$y \rightarrow$ outside angle

$$y = \frac{1}{2}(110 - 30)$$

$$y = \frac{1}{2}(80)$$

$$y = 40^\circ$$



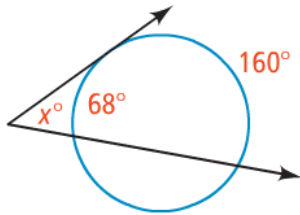
$x \rightarrow$ arc
35 $\rightarrow$ inside

$$2(35) = \frac{1}{2}(x + 30)$$

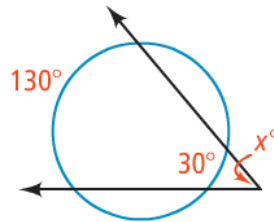
$$70 = x + 30$$

$$x = 40^\circ$$

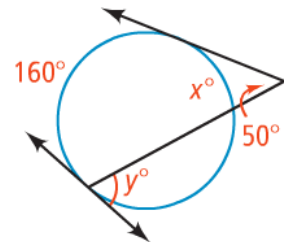
8.



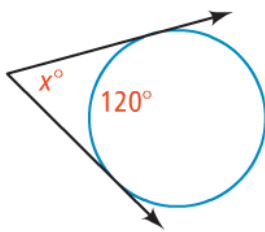
9.



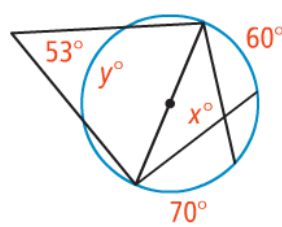
10.



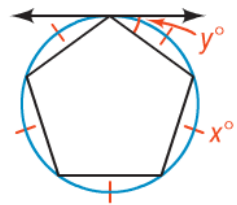
11.



12.



13.



- 14. Photography** You focus your camera on a circular fountain. Your camera is at the vertex of the angle formed by tangents to the fountain. You estimate that this angle is 40° . What is the measure of the arc of the circular basin of the fountain that will be in the photograph?



Finding Center and Radius

What is the center and radius of each circle?

$$(x - 8)^2 + y^2 = 9$$

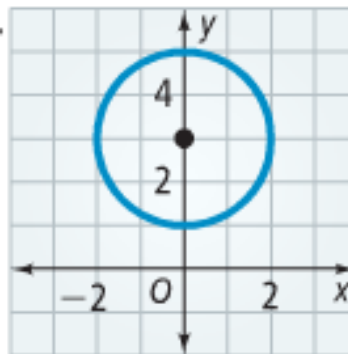
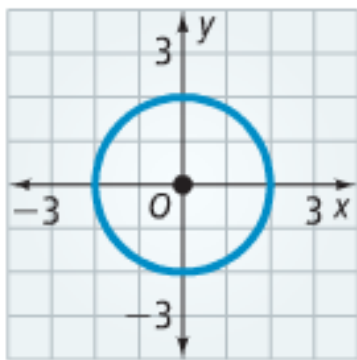
$$(x + 2)^2 + (y - 4)^2 = 16$$

Writing Equations of Circles

Write the standard equation of a circle with center $(5, -2)$ and a radius of 7.

Write the standard equation of a circle with center $(1, -3)$ and a point $(2, 2)$.

Writing Equations of Circles



Name _____ Class _____ Date _____

12-5

Practice

Form G

Circles in the Coordinate Plane

Find the center and radius of each circle.

1. $x^2 + y^2 = 36$

2. $(x - 2)^2 + (y - 7)^2 = 49$

3. $(x + 1)^2 + (y + 6)^2 = 16$

4. $(x + 3)^2 + (y - 11)^2 = 12$

Write the standard equation of each circle.

5. center $(0, 0)$; $r = 7$

6. center $(4, 3)$; $r = 8$

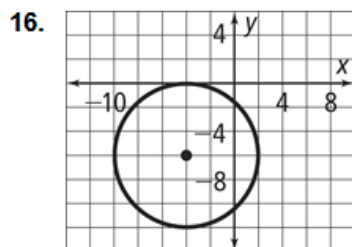
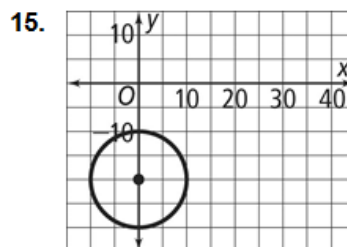
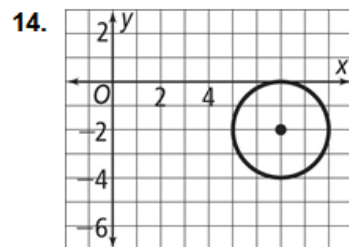
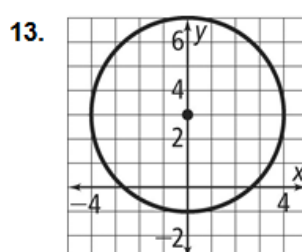
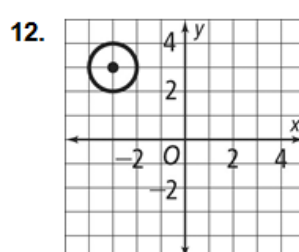
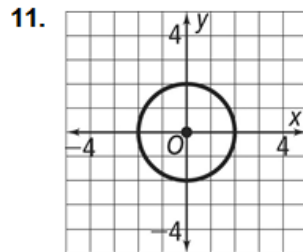
7. center $(5, 3)$; $r = 2$

8. center $(-5, 4)$; $r = \frac{1}{2}$

9. center $(-2, -5)$; $r = \sqrt{2}$

10. center $(-1, 6)$; $r = \sqrt{5}$

Write the standard equation of each circle.



Find the center and radius of each circle. Then graph the circle.

17. $x^2 + y^2 = 25$

18. $(x - 3)^2 + (y - 5)^2 = 9$

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

20. $(x + 1)^2 + (y - 1)^2 = 36$

Write the standard equation of the circle with the given center that passes through the given point.

21. center $(0, 0)$; point $(3, 4)$

22. center $(5, 9)$; point $(2, 9)$

23. center $(-4, -3)$; point $(2, 2)$

24. center $(7, -2)$; point $(-1, -6)$

Write an equation of a circle with diameter $\overline{AB}$.

27. $A(0, 0)$, $B(-6, 8)$

28. $A(0, -1)$, $B(2, 1)$

29. $A(7, 5)$, $B(-1, -1)$