SQUARES AND TRIANGLES AGREE CIRCLES ARE POINTLESS

3.14% of Sailors are Pi Rates

Chapter 12
Properties of Circles
Geometry PAP

You're Pointless.

Name _____

Period _____

Teacher _____

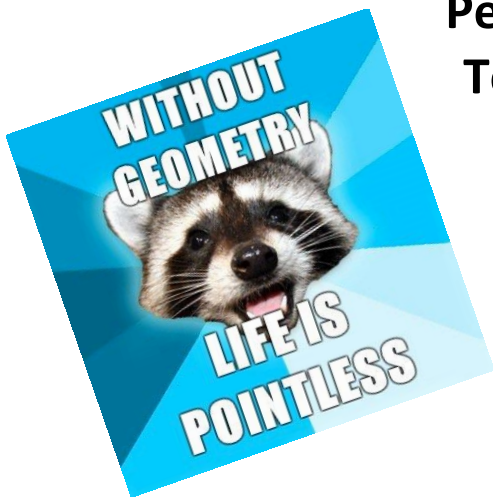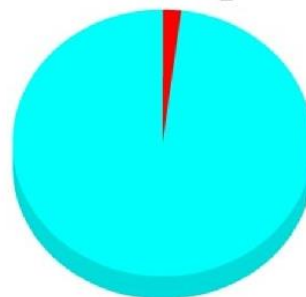WITHOUT GEOMETRY LIFE IS POINTLESS
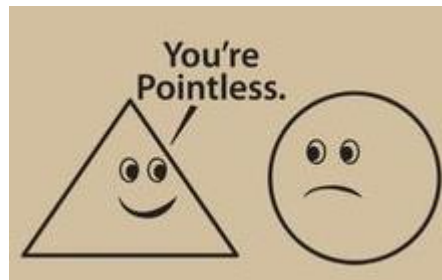
What i do when im supposed to do my homework

■ Actually doing homework.
■ Memecenter

Geometry PAP 6th Six Weeks 2015-2016

| MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
April 4	5	6	7	8
8-3 Rotations CW:pages 8-10 HW: Try rotations about a point that is not the origin.	8-3 Rotations about a point not the origin 8-4 Symmetry CW: pages 11-13 HW:Watch Video Dilations	8-7 Dilations CW:pages 18-20 HW Complete classwork **Need for class the next day: red & blue pen, highlighter, pencil**	8-7 Dilations CW: pages 18-20 HW: Complete classwork **Need for class the next day: Red & blue Pen, highlighter, pencil.**	**Quiz** 9.5 Compositions of Transformations CW:pages 14-17 HW: Complete classwork, makes sure EOC #6 is complete
11	12	13	14	15
Review **EOC #6 Due** **Formula Quiz #6**	**Test #16** Give out EOC #7 HW: Watch video Vocabulary with Circles, and video Arcs and Chords	Vocabulary with Circles 12-1 Properties of Tangents CW: pages 4-7 HW: Watch video 12-2 Arcs and Chords	Vocabulary with Circles 12-1 Properties of Tangents CW: pages 4-7 HW: Watch video 12-2 Arcs and Chords	12-2 Arcs and Chords **Quiz** CW: pages 8-10 HW: Watch video 12-3 Inscribed Angles
18	19	20	21	22
12-3 Inscribed Angles CW: pages 11-13 HW: Watch video 12-4B Special Segments of Circles	12-4B Special Segments of Circles CW: page 14 HW: Watch video 12-4A Angles measures in circles	12-4A Angle Measures in Circles CW: pages 15-18 HW: Watch video 11-4 Graphing Circles	12-4A Angle Measures in Circles CW: pages 15-18 HW: Watch video 11-4 Graphing Circles	11-4 Graphing Circles CW: pages 19-21 HW: Complete classwork, complete EOC #7, start Review, study for formula quiz.
25	26	27	28	29
Review **EOC #7 Due** **Formula Quiz**	**Test #17** Give out EOC #8	End of Year Wrksht #1 End of Year Wrksht #2	End of Year Wrksht #1 End of Year Wrksht #2	End of Year Wksht #3
May 2	3	4	5	6
End of Year Wksht #4	End of Year Wksht #5	End of Year Wksht #6	End of Year Wksht #6	End of Year Wksht #7
9	10	11	12	13
Review **EOC #8 Due** **Formula Quiz**	**Test #18** Give out EOC #9	Review for final	Review for final	Review for final
16 1-7	17 1-7	18 1,3,5,7	19 late 2,4,6	20 1-7
Review for final **EOC #9 Due**	Review for final **Formula Quiz**	Seniors (3rd & 5th) Review for final	Seniors (4th & 6th) Review for Final	7th Final Exam
23	24	25	26	27
1st and 2nd Final exam (all)	3rd and 4th Final Exam	5th and 6th Final Exam	Teacher Workday	Holiday

Notes of Arcs and Angles

Vertex Location	Notes	Diagram	Formula
Center Of Circle	Measure of the angle is equal to the measure of the intercepted arc.		$\sphericalangle = arc$
On the Circle	Measure of the angle is equal to one-half the measure of the intercepted arc.		$\sphericalangle = \dfrac{arc}{2}$
			$\sphericalangle = \dfrac{arc}{2}$
In the Circle (not center)	Measure of the angle is equal to one-half the sum of the intercepted arcs(2).		$\sphericalangle = \dfrac{arc + arc}{2}$
Outside the Circle	Measure of the angle is equal to one-half the difference of the measures of the intercepted arcs(2).		$\sphericalangle = \dfrac{arc_{big} - arc_{small}}{2}$
			$\sphericalangle = \dfrac{arc_{big} - arc_{small}}{2}$
			$\sphericalangle = \dfrac{arc_{big} - arc_{small}}{2}$

3

Worksheet Parts of a Circle

Name _____

Circle *P* has a radius of 3 cm. Circle *Q* has a radius of 2 cm

for #1-7
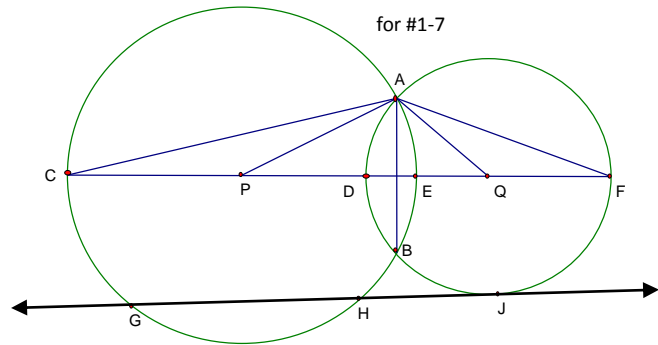
1) Name three radii of circle *P*.

2) If $DE = 1 cm$, then find CF. Explain your
    answer algebraically.

3) In circle *P*, $\overleftrightarrow{GH}$ is what type of line.

4) In circle *Q*, $\overleftrightarrow{GH}$ is what type of line.

5) If $DE = 1 cm$ and $AF = 3\frac{1}{2} cm$, find the perimeters of $\triangle APQ$ and $\triangle AQF$.
    Explain your answers algebraically.

6) DQ is equal to $\frac{1}{2}$ what segment?

7) $\overline{QA}$ is congruent to what two segments?

8) Circle *Q* has a radius of 8 cm, *P* is in the plane of circle, and $QP = 6 cm$. State
    whether *P* is inside, on, or outside the circle. Explain you answer.

9) A circle *O* has a radius of 8. Find the length of the longest chord of the circle.
    Explain your answer.

10) Two concentric circles have a common center *P* and radii of 7 cm and 11 cm,
     respectively. Points *A*, *B*, *C*, and *D* are chosen such that $PA = 5 cm$, $PB = 8 cm$,
     $PC = 10 cm$, and $PD = 14 cm$. State whether each of the points *A*, *B*, *C*, and *D*
     is in the interior or exterior of <u>each</u> circle. Explain each of your answers.

11) Circle *O* has a radius of 4 cm. If radii $\overline{OA}$ and $\overline{OB}$ form a right angle, find AB.

12) Circle *N* has a radius of 10 cm and radii $\overline{NA}$ and $\overline{NB}$ form an angle of $120°$. Find AB.

13) In the figure, $\overline{AB}$ is a diameter of circle *O*, $\overline{OC}$ and $\overline{OD}$ are radii, $m\angle D = 70°$
     and $m\angle C = 55°$. Find the measure of all other angles.

for #13

Draw two circles in such a position that each condition is satisfied.

14) Exactly three common tangents can be drawn.

4
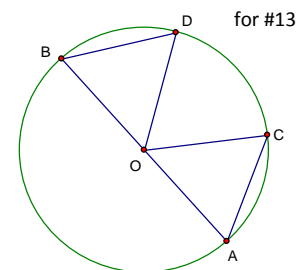
State the best term for the given figure in the diagram.

1. F

2. $\overleftrightarrow{FE}$

3. $\overline{HG}$

4. $\overline{DB}$

5. C

6. $\overline{BE}$

7. $\overleftrightarrow{DB}$

8. $\overleftrightarrow{AG}$
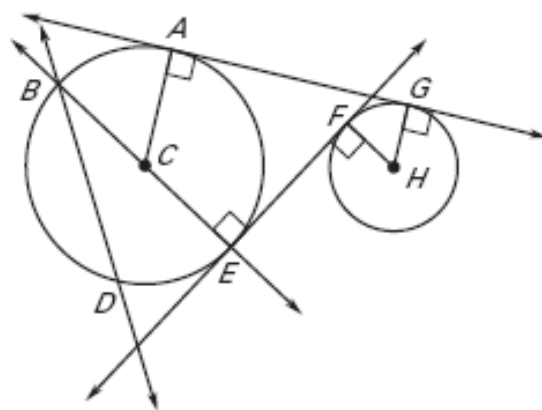
Worksheet 12-1 Tangents and their properties

On 1-5, $\overline{XA}$ and $\overline{XB}$ are tangents segments from the external point X.
1) If OA = 7 and XO = 25, find AX.
2) If XA = 24 and XO = 26, find the radius of the circle.
3) $m\angle AXO = 32°$. Find $m\angle AXB$.
4) $m\angle AOX = 48°$. Find $m\angle AXB$.
5) $m\angle AXB = 38°$. Find $m\angle AOB$.
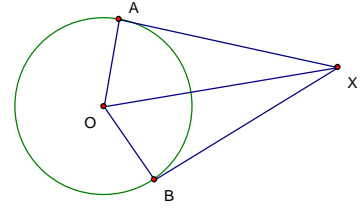
In 6-8, $\overline{AC}$ is a common external tangent of circle H and circle E. $\overline{BE}$ and $\overline{AH}$ are radii. $CB = 12$, $BE = 5$, $GF = 6$, $AH = 15$.
6) Find DC.
7) Find HE.
8) Find AB.
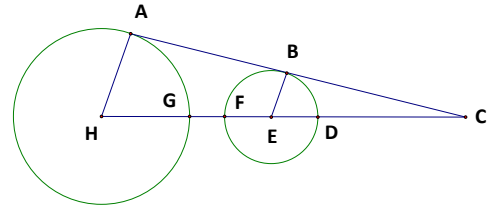
In 9-13, ABCD is a circumscribed quadrilateral with $AD = 6$.
9) Find x.   10) Find y.
11) Find z.   12) Find CD
13) Find the perimeter of ABCD.
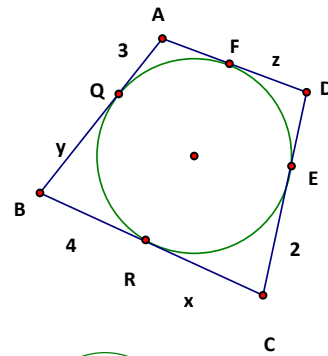
14) Given: $\overline{XU}$, $\overline{XV}$, and $\overline{ZY}$ are tangents to circle O. $XO = 17$ and $OU = 8$, find $XZ + YZ + XY$.
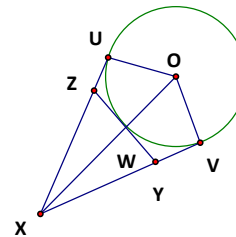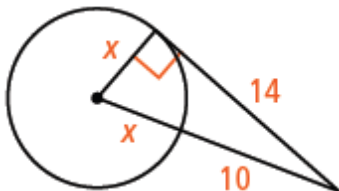
15) Find the radius, x.   16) Find the radius, x.
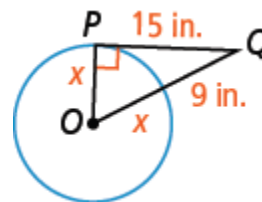
In the diagram, $\overline{BC}$ is a radius of $\odot C$. Determine whether $\overline{AB}$ is tangent to $\odot C$. *Explain* your reasoning.

17.

18.

19.
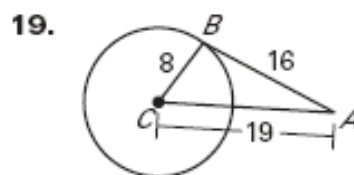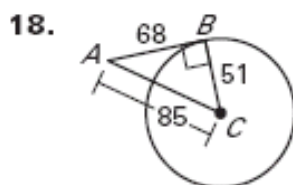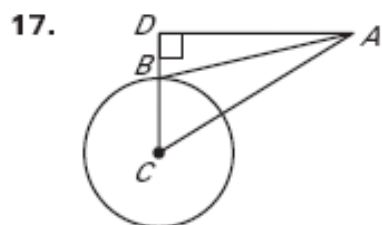
In the diagram, assume that segments are tangents if they appear to be. Find the value(s) of x.

20.

21.

22.

23.

24.

25.
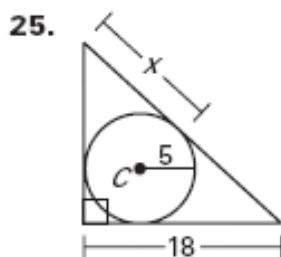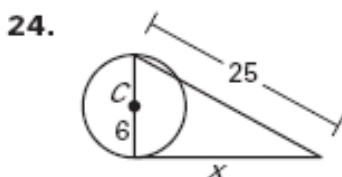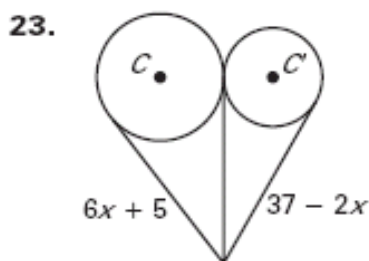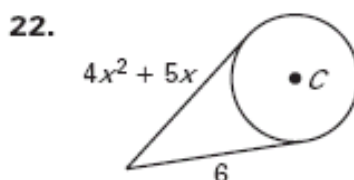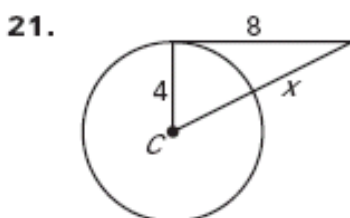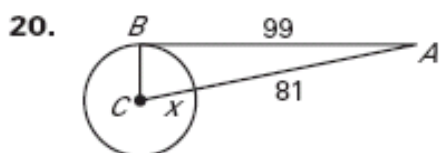
26. **Water Tank** You are standing 14 feet from the edge of a cylindrical water tank and 26 feet from a point of tangency. The tank is 10 feet tall. What is the volume of the tank in cubic feet?
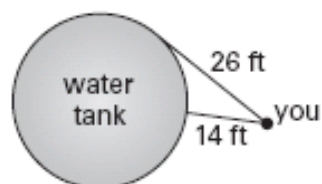
27. **Pulleys** The figure shows a pulley system in which a belt is wrapped around two pulleys so that one can drive the other. $\overline{RS}$ is tangent to $\odot Q$ at R and to $\odot P$ at S. $\overline{QT}$ is perpendicular to $\overline{SP}$, and Q and P are the centers of the circles. Let $QR = 2$ in., $PS = 8$ in., and $PQ = 12$ in.
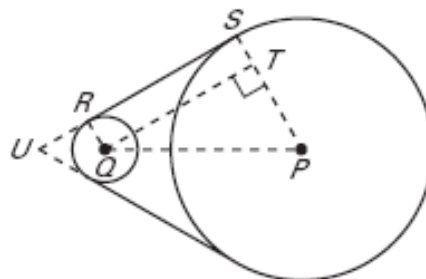
a. Write a paragraph proof to show that $QRST$ is a rectangle.

b. Find RS.

c. Find $m\angle P$.

Worksheet Arcs and Chords 12-2

What can you conclude about the diagram? State a postulate or theorem that justifies your answer.

1.

2.

3.
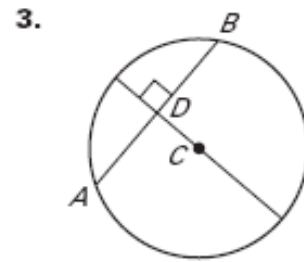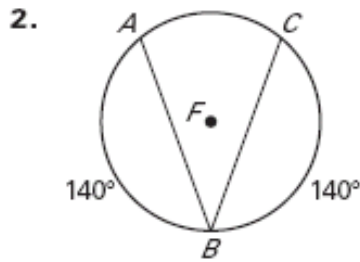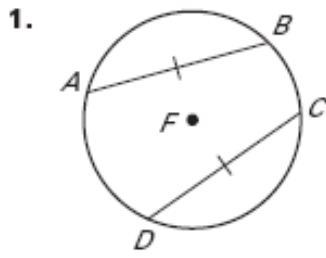
P **is the center of the circle. Use the given information to find** *XY.*

4. $ZY = 3$
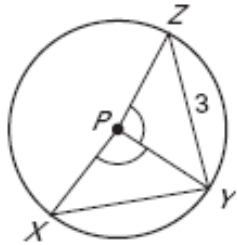
5. $ZY = 6, XW = 4$
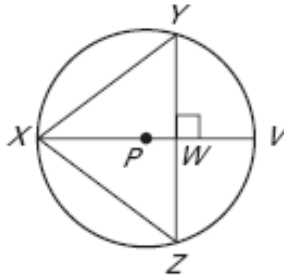
6. $CA = 3$
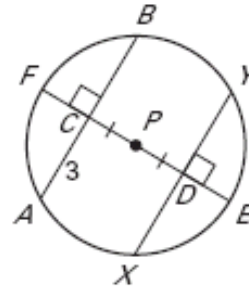
Find the measure of $\overset{\frown}{MN}$**.**

7.

8.

9.

10.

11.

12.

13.

14.

15.

8
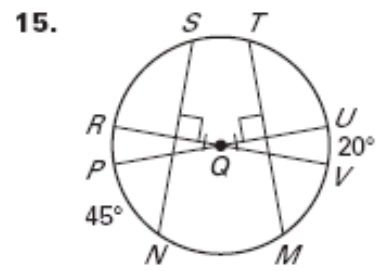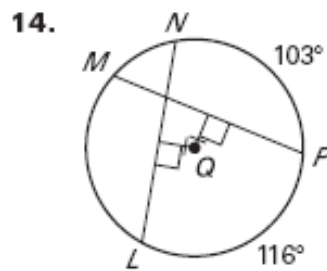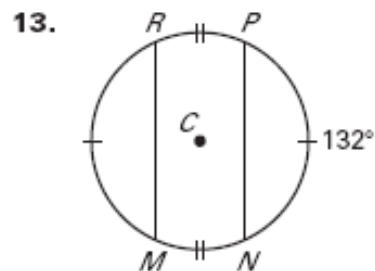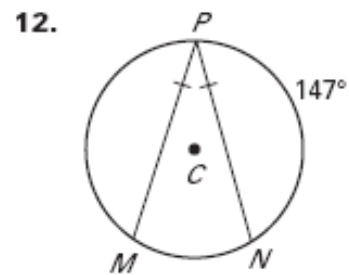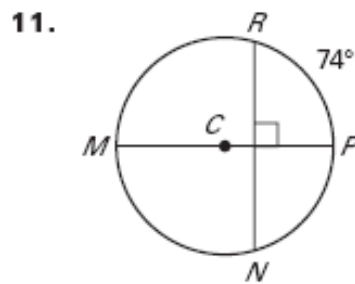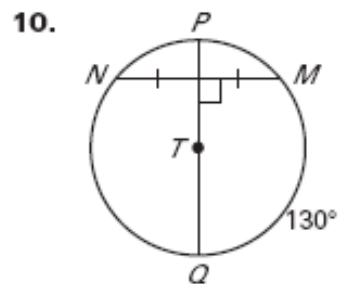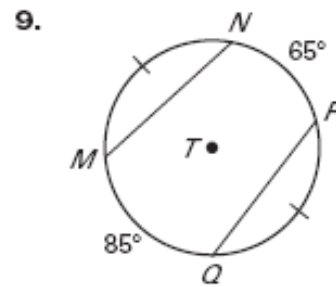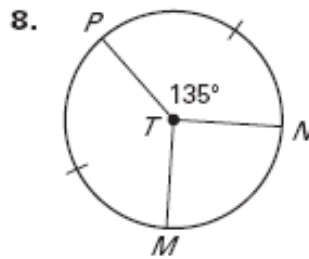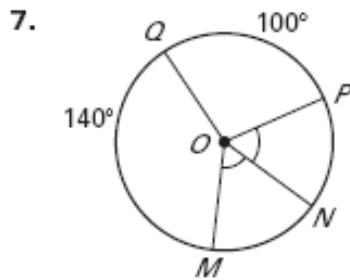
In each circle, O is the center. Find the measure.

1) *PQ*

120°

2) *GH*

12

3) *XY*

12 20
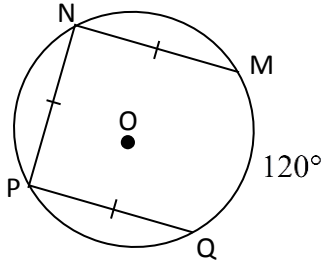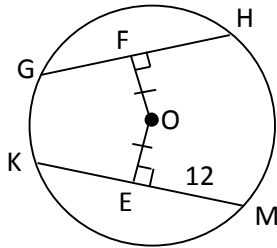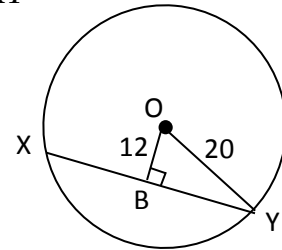
4)   Suppose a chord is 20 inches long and is 24 inches from the center of the circle. Find the length of the radius.

5)   Suppose a chord of a circle is 5 inches from the center and is 24 inches long. Find the length of the radius.

6)   Suppose the diameter of a circle is 30 centimeters long and a chord is 24 centimeters long. Find the distance between the chord and the center of the circle.

In each circle, O is the center. Find each measure to the nearest tenth.

7) *mBC*

110°

8) $\overline{YQ}$

10

8

8
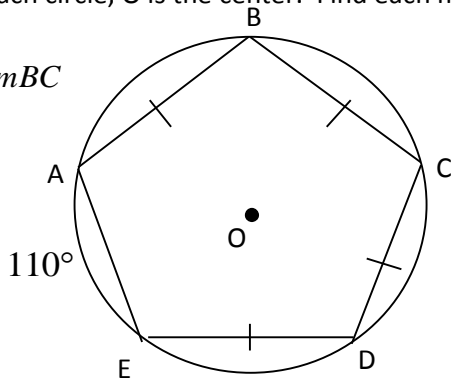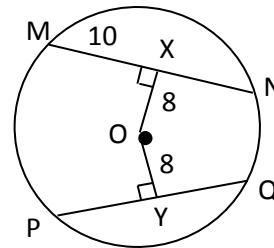
9)   Suppose a chord of a circle is 16 inches long and is 6 inches from the center of the circle. Find the length of a radius.

10) Find the length of a chord that is 5 inches from the center of a circle with a radius of 13 inches.

11) Suppose a radius of a circle is 17 units and a chord is 30 units long. Find the distance from the center of the circle to the chord.

12) Find $\overline{AB}$. (Special Right Triangles)

120°

6
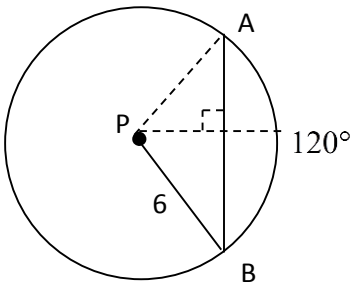
13) Find $\overline{AB}$.
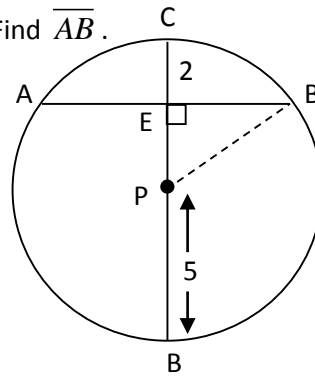
In $\odot D$, $\overline{VR}$ and $\overline{QU}$ are diameters with $\overline{QU} \perp \overline{PR}$ and $\overline{QU} \perp \overline{VW}$.

14) Name the midpoint of $\overline{QU}$.

15) Name the midpoint of $\overline{PR}$.

16) If $\overline{VA} = 9$, find $\overline{VW}$.
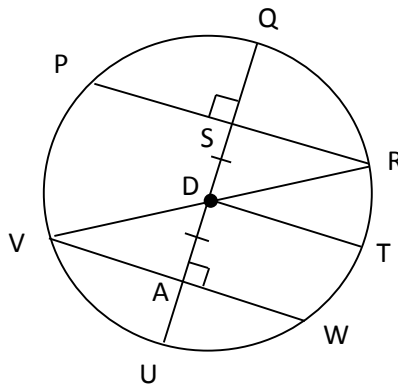
17) Name two arcs congruent to QR.

18) Explain why $\overline{VW} \parallel \overline{PR}$.

19) Which chord is longer, $\overline{PR}$ or $\overline{VW}$?

20) If $\overline{DS} = 14$ and $\overline{PR} = 32$, find $\overline{DR}$ to the nearest tenth.

21) Name two segments congruent to $\overline{DQ}$.

22) Name a segment congruent to $\overline{QS}$.

In each figure, J is the center of the circle. For 23 and 24, find x to the nearest tenth.

23)
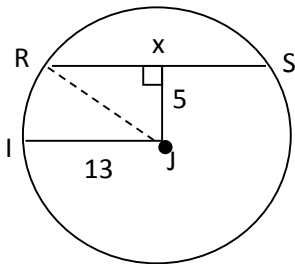
24)
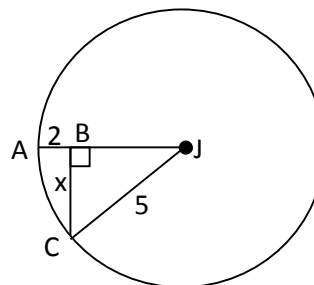
25) In $\odot R$, $\overline{TR} = 6.4$ and $\overline{EN} = 10.8$. Find $\overline{RO}$ to the nearest tenth.

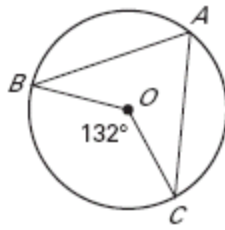26) In $\odot O$, $\overline{MO} = 6$ and $\overline{LN} = 16$. Find x.

10
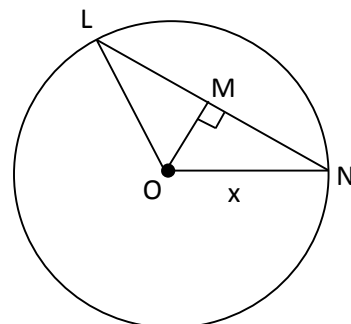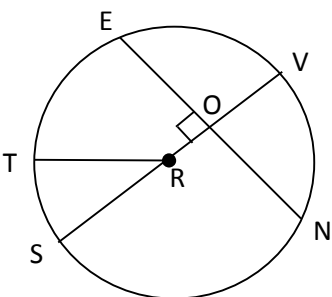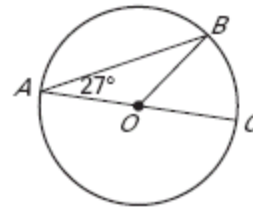
Worksheet 12-3 Inscribed Angles
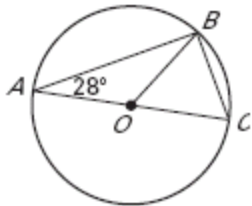
Find the indicated measure.

1. $m\widehat{BC}$
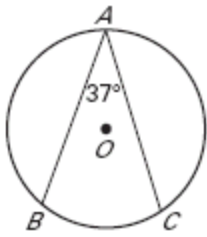
2. $m\angle A$

3. $m\widehat{AB}$
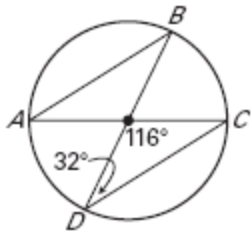
4. $m\angle C$
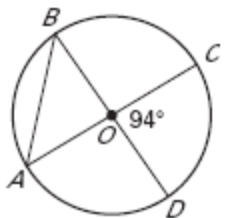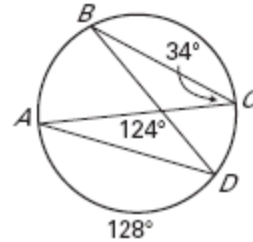
5. $m\widehat{AC}$
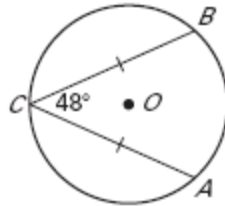
6. $m\widehat{BC}$
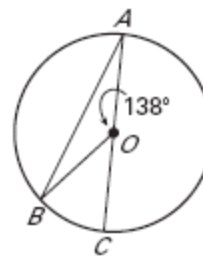
7. $m\angle B$

8. $m\angle A$

9. $m\widehat{BC}$

Find the indicated measure in $\odot O$, given $m\widehat{CD} = 85°$ and $m\widehat{BE} = 97°$.

10. $m\angle ABC$
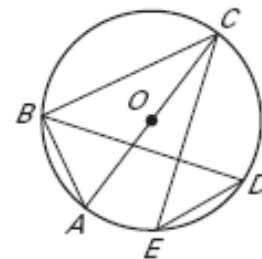
11. $m\angle CED$

12. $m\angle BDE$

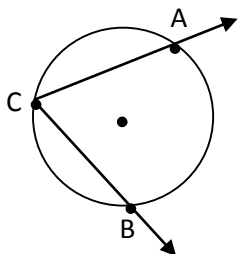**13.** $m\angle CBD$

14. $m\angle ABD$

15. $m\angle BCE$

16. $m\widehat{AD}$

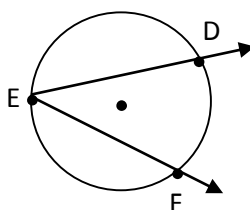**17.** $m\widehat{ABC}$
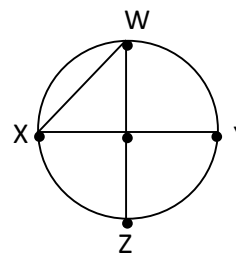
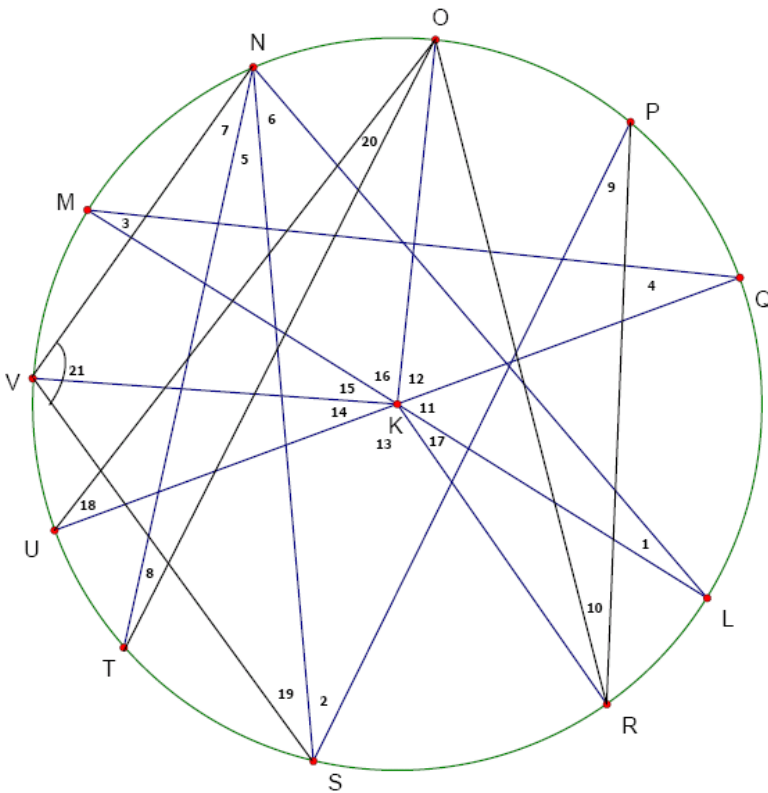18) $m\widehat{AB} = 136°$
Find $m\angle ACB$.

19) $m\angle DEF = 17°$
Find $m\widehat{DF}$.

20) $\overline{XY}$ and $\overline{WZ}$ are perpendicular Diameters. Find $m\angle XWZ$.

11

21) Circle Puzzle Inscribed and Central Angles

Given: m $\widehat{MN}$ on ⊙KL = 35°

m $\widehat{NO}$ on ⊙KL = 29°

m $\widehat{OP}$ on ⊙KL = 34°

m $\widehat{PQ}$ on ⊙KL = 30°

m $\widehat{QL}$ on ⊙KL = 52°

m $\widehat{LR}$ on ⊙KL = 23°

m $\widehat{RS}$ on ⊙KL = 48°

m $\widehat{ST}$ on ⊙KL = 35°

m $\widehat{TU}$ on ⊙KL = 22°

m $\widehat{UV}$ on ⊙KL = 24°

m $\widehat{VM}$ on ⊙KL = 28°

m∠1 = _____

m∠2 = _____

m∠3 = _____

m∠4 = _____

m∠5 = _____

m∠6 = _____

m∠7 = _____

m∠8 = _____

m∠9 = _____

m∠10 = _____

m∠11 = _____

m∠12 = _____

m∠13 = _____   *m∠14* = _____   *m∠15* = _____

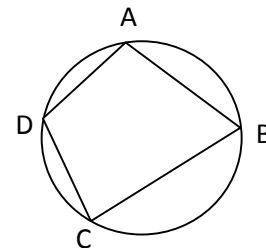*m∠16* = _____   *m∠17* = _____   *m∠18* = _____

m∠19 = _____   *m∠20* = _____   *m∠21* = _____

22) $\overline{PQ}$ is a diameter. Find $m\angle PRQ$.
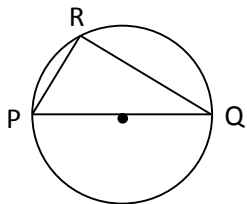
23) $m\angle MNP = 70°, m\angle QMN = 94°$, and $mQP = 85°$. Find $m\angle MQP$ and $m\angle QPN$.
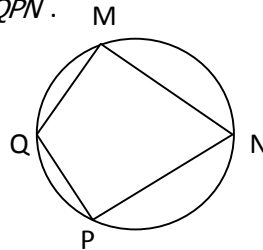
24) $m\angle C = 90°, mAD = 80°$, and $mBC = 125°$. Find $m\angle A, m\angle B$, and $m\angle D$.

Use ⊙O at the right for problems 24-35.
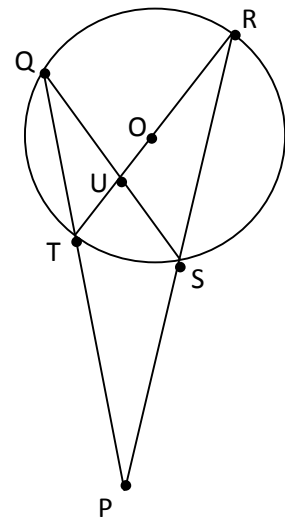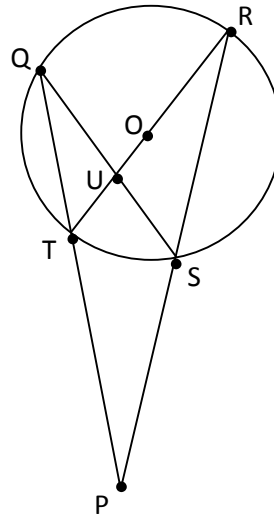$m\angle P = 24°, m\angle Q = 18°$, and $\overline{TR}$ is a diameter.
Find these measures.

24) mST 25) mQR

26) $m\angle SUR$ 27) mTQ

28) $m\angle PSQ$ 29) $m\angle TRS$

Suppose that $mTS = 40°, mQR = 78°$, and $\overline{TR}$
is a diameter. Find these measures in ⊙O.

30) $m\angle QSR$ 31) $m\angle P$

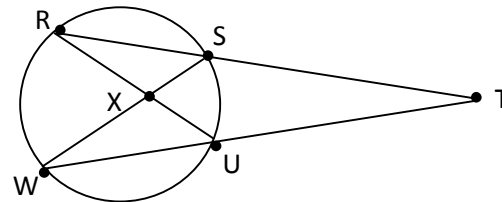32) $m\angle TUQ$ 33) mSR

34) $m\angle Q$ 35) $m\angle PSQ$

Use the figure at the right for Problems 36-38

36) $mAB = 82°$. Find $m\angle BEA$.

37) $m\angle CBE = 29°$. Find $m\angle CAE$ and mCE.

38) $mBEA = 290°$. Find $m\angle BCA$.
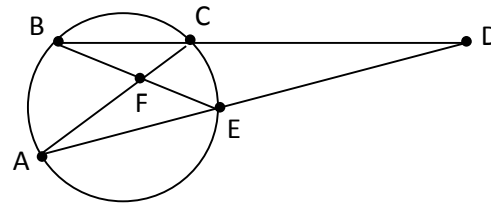
Use the figure at the right for problems 39-41.

39) $mSU = 46°$. Find $m\angle SWU$.
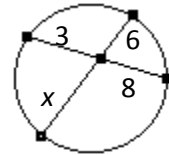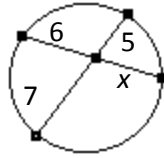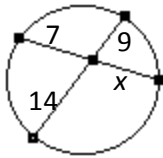
40) $m\angle RUW = 45°$. Find $m\angle RSW$ and mRW.

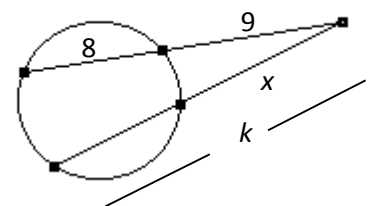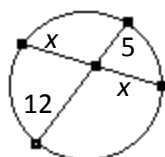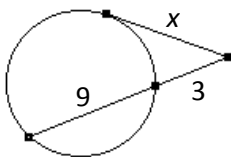41) $mSRU = 310°$. Find $m\angle SRU$.

13

Worksheet 12-4 Part B Special Segments in Circles

Chords, secants, and tangents are shown, find *x*.
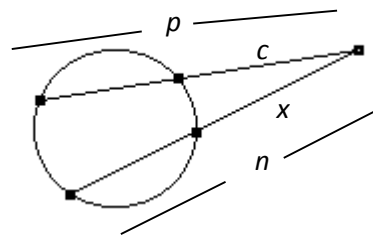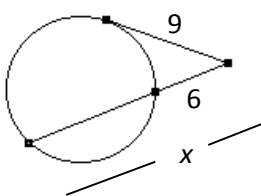
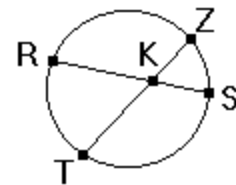1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

7. _____ 8. _____

In 9 – 12, Given: chords $\overline{RS}$ and $\overline{TZ}$ intersect at *K*.

$TK =$ _____ 9. $RK = 6$, $KS = 2$, $TZ = 7$, find TK.

$RK =$ _____ 10. $RS = 8$, $TK = 8$, $KZ = 2$, find RK.

$KZ =$ _____ 11. $RK = 8$, $RS = 13$, $TZ = 14$, find KZ.

$TZ =$ _____ 12. $RK = 8$, $KS = 6$, $TK = 10$, find TZ.

In 13 – 16, secants $\overrightarrow{OA}$ and $\overrightarrow{OB}$ and tangent $\overline{OC}$ are drawn from point *O*.

$BJ =$ _____ 13. $OJ = 4$, $OC = 6$, find BJ.

$OJ =$ _____ 14. $OG = 4$, $GA = 8$, $JB = 13$, find OJ.

$OA =$ _____ 15. $OJ = 5$, $JB = 11$, $GA = 16$, find OA.

$OC =$ _____ 16. $JB = 5$, $OJ = 3\sqrt{3}$, find OC.

14
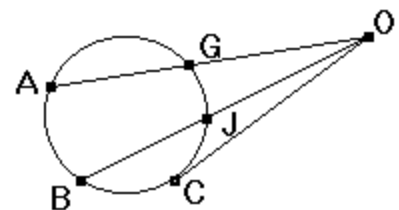
Worksheet 12-4A   Measurement of Angles
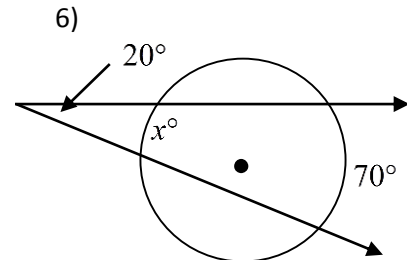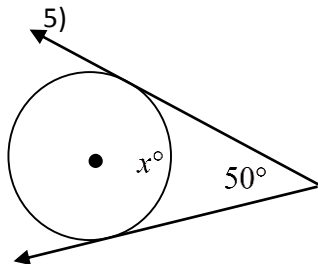
Find the measure of each numbered angle.

1)

52°   1   40°

2)

2

134°

3)

110°

100°

3

80°

Find the value of x.

4)   130°

100°

$x°$

5)

$x°$

50°

6)

20°

$x°$

70°
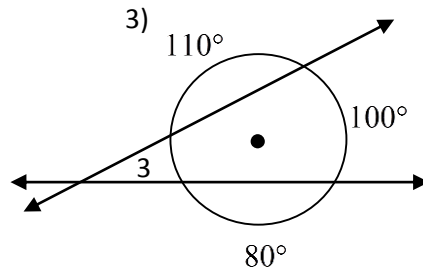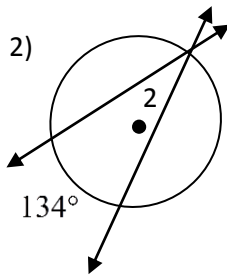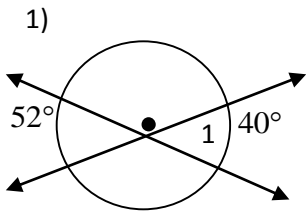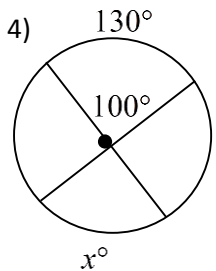
Assume that lines that appear to be tangents are tangents. In $\odot Q$, $m\angle CQD = 120°$, $mBC = 30°$, and $m\angle BEC = 25°$.
Find each measure.

7) mDC

8) mAD
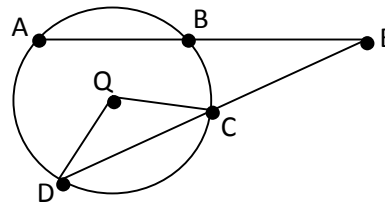
9) mAB

10) $m\angle QDC$

In $\odot Q$, $mAE = 140°$, $mBD = y°$, $mAB = 2y°$, and $mDE = 2y°$. Find each measure.

11) mBD

12) mAB
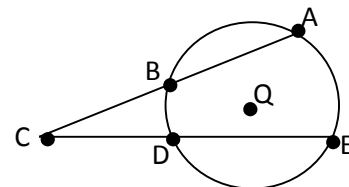
13) mDE

14) $m\angle BCD$

In $\odot P$, $mBC = 4x - 50$, $mDE = x + 25$, $mEF = x - 15$, $mFB = 50$, and $mCD = x$. Find each measure.

15) $m\angle A$

16) $m\angle BCA$

17) $m\angle ABC$

18) $m\angle GBC$

19) $m\angle FHE$

20) $m\angle CFD$

15
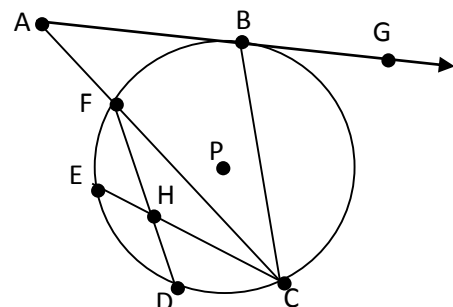
Use the diagram to find the missing information.

21) Find $m\angle 3$

148°

128°

3
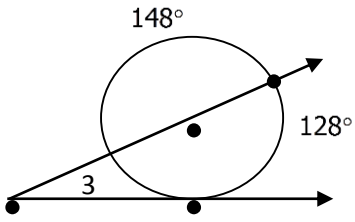
22) Find the value of x.

H

S

106°

L

$x°$

26°

Q

T
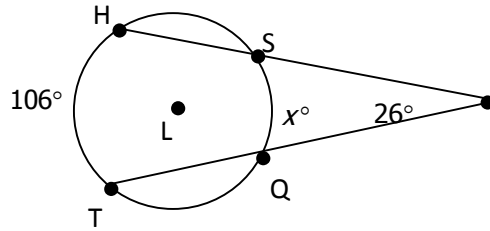
23) Find the value of x and $m\angle AET$.

$(100+4x)°$

A

E

T

$(40x-2)°$

K

$(30x+10)°$

M

H

$(183-5x)°$

24) Find $m\angle 1$.

160°

60°

1

106°

25) Find $m\angle 2$,

85°

2

230°

26) Find $m\angle 4$.

4

102°
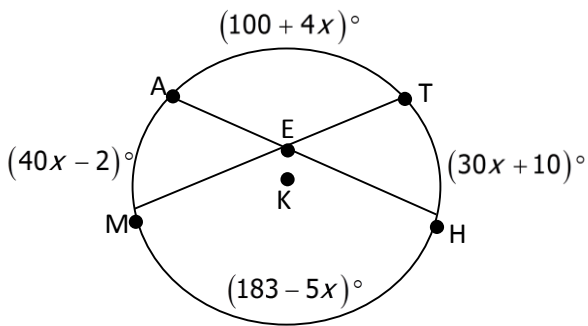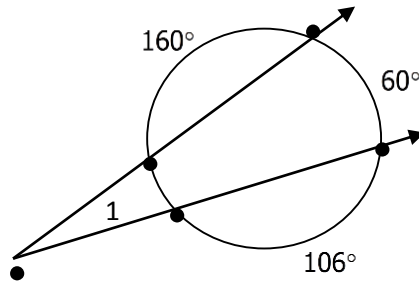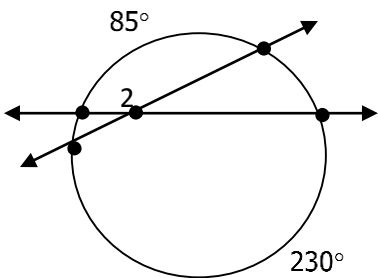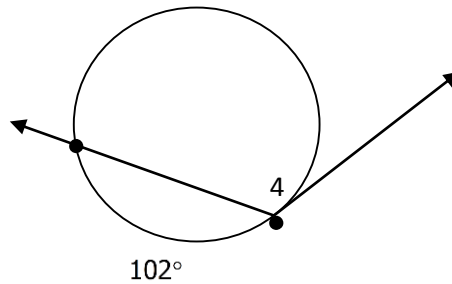
27) Find the value of x.

84°

52°

S

$x°$
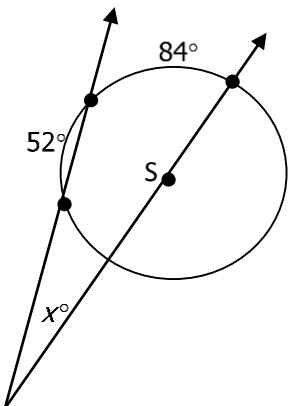
28) Find the value of x.

S

$x°$

28°

12°
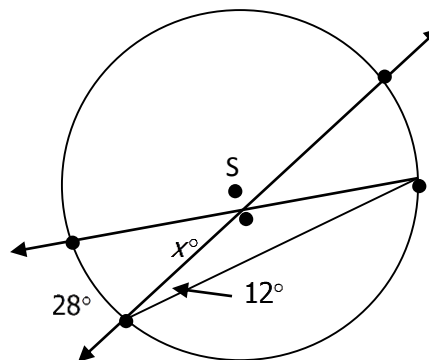
Chapter 10
Circle Puzzle #1
Find the measures of the missing angles.

$\overline{HF}$ is a diameter.
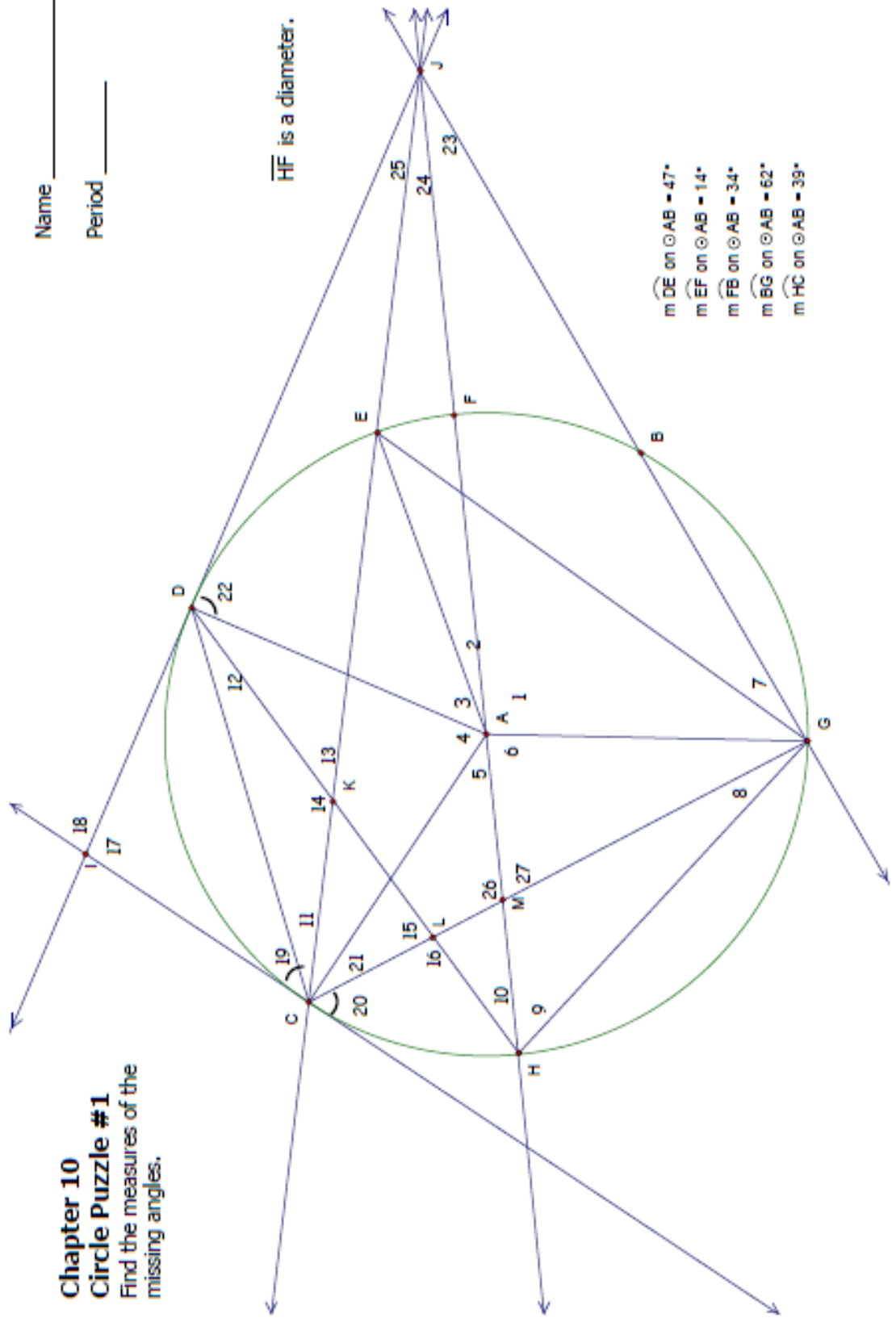
m $\overset{\frown}{DE}$ on ⊙ AB = 47°
m $\overset{\frown}{EF}$ on ⊙ AB = 14°
m $\overset{\frown}{FB}$ on ⊙ AB = 34°
m $\overset{\frown}{BG}$ on ⊙ AB = 62°
m $\overset{\frown}{HC}$ on ⊙ AB = 39°

m∠1 = _____ m∠2 = _____ m∠3 = _____ m∠4 = _____ m∠5 = _____ m∠6 = _____

m∠7 = _____ m∠8 = _____ m∠9 = _____ m∠10 = _____ m∠11 = _____ m∠12 = _____

m∠13 = _____ m∠14 = _____ m∠15 = _____ m∠16 = _____ m∠17 = _____ m∠18 = _____

m∠19 = _____ m∠20 = _____ m∠21 = _____ m∠22 = _____ m∠23 = _____ m∠24 = _____

m∠25 = _____ m∠26 = _____ m∠27 = _____

Name _____

Chapter 10   Circle Puzzle #2

In Circle H, $\overline{AE}$ is a diameter. C, F, G are points of tangency.
$\overarc{BC} = 69°$, $\overarc{AB} \cong \overarc{CD}$, $\overarc{DE} = 25°$, $\overarc{AG} = 52°$, $\overarc{EF} = 78°$. Find angles 1-30.

$m\angle 1 =$ _____

$m\angle 2 =$ _____

$m\angle 3 =$ ▪ _____

$m\angle 4 =$ _____

$m\angle 5 =$ _____

$m\angle 6 =$ ▪ _____

$m\angle 7 =$ _____

$m\angle 8 =$ _____

$m\angle 9 =$ ▪ _____

$m\angle 10 =$ _____

$m\angle 11 =$ _____

$m\angle 12 =$ ▪ _____

$m\angle 13 =$ _____

$m\angle 14 =$ _____

$m\angle 15 =$ ▪ _____

$m\angle 16 =$ _____

$m\angle 17 =$ _____

$m\angle 18 =$ ▪ _____

$m\angle 19 =$ _____

$m\angle 20 =$ _____

$m\angle 21 =$ _____

$m\angle 22 =$ _____

$m\angle 23 =$ _____

$m\angle 24 =$ ▪ _____

$m\angle 25 =$ _____

$m\angle 26 =$ _____

$m\angle 27 =$ ▪ _____

$m\angle 28 =$ _____

$m\angle 29 =$ _____

$m\angle 30 =$ _____

18

Worksheet 11-4 Graphing Circles on a Coordinate Plane

Write the standard equation of the circle.

1.

2.

3.
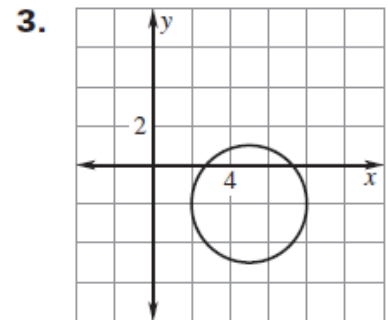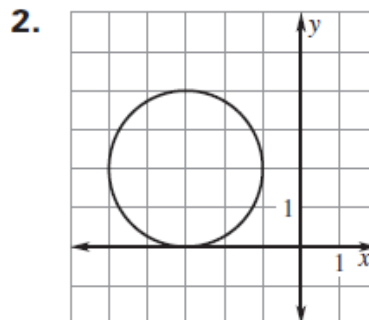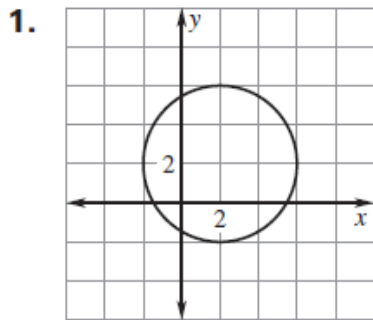
Write the standard equation of the circle with the given center and radius.

5. Center $(0, 0)$, radius 9

6. Center $(1, 3)$, radius 4

7. Center $(-3, 0)$, radius 5

8. Center $(4, -7)$, radius 13

9. Center $(0, 14)$, radius 14

10. Center $(-12, 7)$, radius 6

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

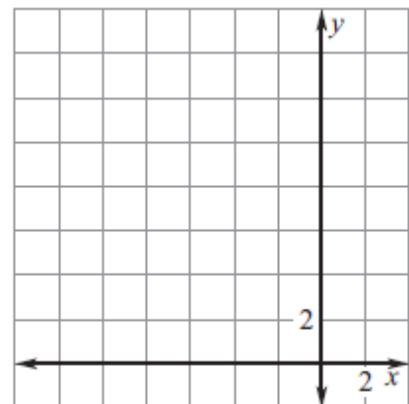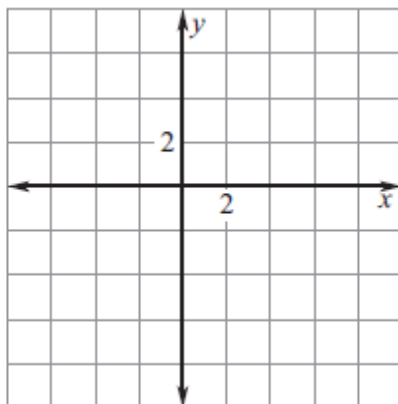**8.** The center is $(1, 3)$, and a point on the circle is $(-4, 15)$.

9. The center is $(-5, -2)$, and a point on the circle is $(7, 14)$.

10. The center is $(-1, 2)$, and a point on the circle is $(47, 16)$.
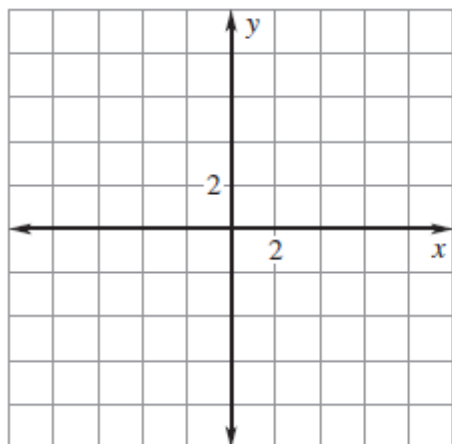
Graph the equation.

11. $(x - 3)^2 + (y + 4)^2 = 16$

12. $(x + 5)^2 + (y - 7)^2 = 25$

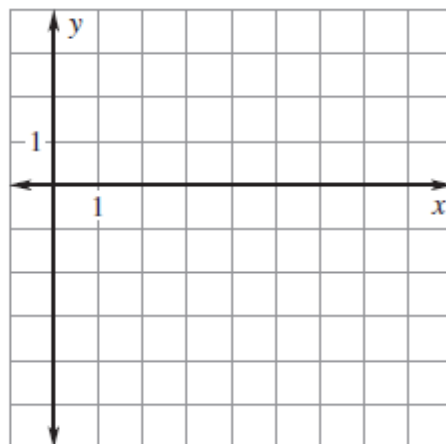

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Graph the equation.
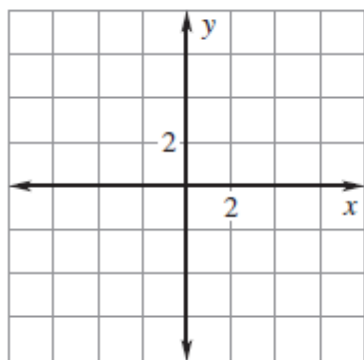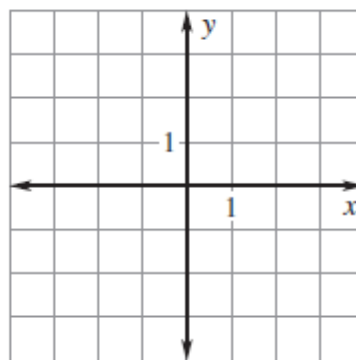
21. $x^2 + y^2 = 64$

22. $(x - 4)^2 + (y + 1)^2 = 16$
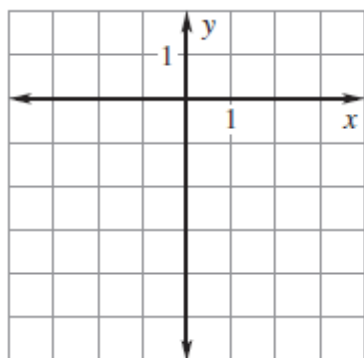
Graph the equation.

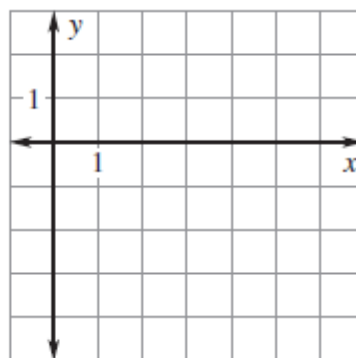**33.** $x^2 + y^2 = 25$

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

35. $x^2 + (y + 2)^2 = 9$

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

20

More 11-4 Circles Graphing and Standard form

Find the center and the radius of the circle.

Examples:

$x^2 + y^2 - 10x + 9 = 0$ $x^2 + y^2 + 6x - 8y - 11 = 0$

16. $x^2 + y^2 + 4x + 6y - 36 = 0$ 17. $x^2 + y^2 - 10x + 8y - 23 = 0$

18. $x^2 + y^2 + 2x - 35 = 0$ 19. $x^2 + y^2 + 6x - 8y = 0$

20. $x^2 + y^2 + 6x - 14y - 12 = 0$ 21. $x^2 + y^2 - 8x - 4y + 18 = 0$

Match the equation of a circle with its description.

1. $x^2 + y^2 = 4$ **A.** center $(-1, 4)$, radius 4

2. $x^2 + y^2 = 9$ **B.** center $(-2, -3)$, radius 3

3. $(x + 1)^2 + (y - 4)^2 = 16$ **C.** center $(0, 0)$, radius 2

4. $(x + 2)^2 + (y + 3)^2 = 9$ **D.** center $(2, 5)$, radius 3

5. $(x + 3)^2 + (y - 5)^2 = 16$ **E.** center $(-3, 5)$, radius 4

6. $(x - 2)^2 + (y - 5)^2 = 9$ **F.** center $(0, 0)$, radius 3