Geometry B
9.1 Circles and Circumference

Name Key
Hour _____ **Date** _____

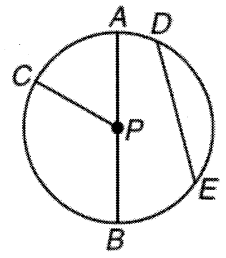
ASSIGNMENT

Match each description from the first column with the best term from the second column. (Some terms in the second column may be used more than once or not at all).

1. A segment whose endpoints are on the circle C
2. The set of all points in a plane that are the same distance from a given point. D
3. The distance between the center of a circle and any point on the circle. A
4. A chord that passes through the center of a circle B
5. A segment whose endpoints are on the center and any point on the circle. A
6. A chord made up of two collinear radii. B
7. The distance around the circle. E

a. radius
b. diameter
c. chord
d. circle
e. circumference

For #8-12, use the figure at the right.



8. Name the circle.

⊙P

9. Name a diameter.

$\overline{AB}$

10. Name a chord.

$\overline{DE}$ or $\overline{AB}$

11. Name a radius that is ***not*** part of the diameter.

$\overline{CP}$

12. Suppose $CP = 6$ cm. Find AB.

12 cm

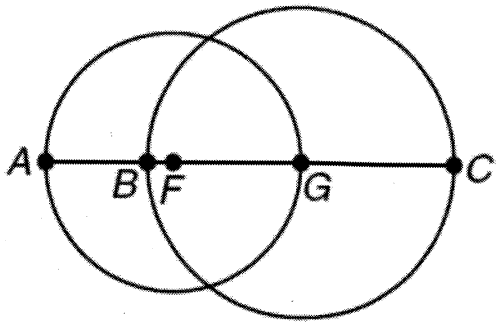
The diameter of circle F is 5 inches and the diameter of circle G is 6 inches.

13. Find BF.

0.5 in

14. Find AB.

2 in



15. A circle has a radius of 20 inches. Find the circumference of the circle.

40π or 125.66 in

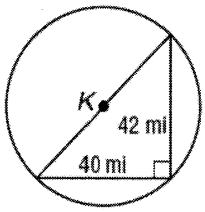
16. A circle has a circumference of 120 mm. Find the diameter of the circle.

38.20 mm

17. A circle has a circumference of 45 ft. Find the radius of the circle.

7.16 feet

18. Find the exact circumference of the circle below.



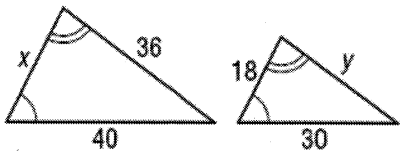
58π mi

Review

19. Edward Hopper's oil on canvas painting *Nighthawks* has a length of 60 inches and a width of 30 inches. A print of the original has a length of 2.5 inches. What is the width of the print?

1.25 in

20. The triangles below are similar. Find the values of x and y.



$x =$ 24 $y =$ 27

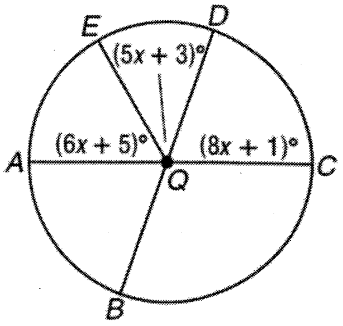
Geometry B
9.2 Angles and Arcs

Name _____
Hour _____ **Date** _____

ASSIGNMENT

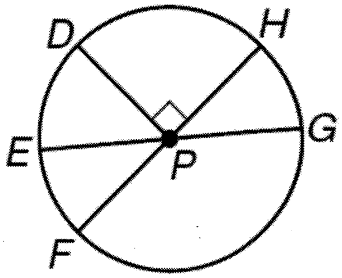
In circle Q, *AC* and *DB* are diameters. Find each measure.

1. $m\angle AQE$ 59°
2. $m\angle DQE$ 48°
3. $m\angle CQD$ 73°
4. $m\angle BQC$ 107°
5. $m\angle CQE$ 121°
6. $m\angle AQD$ 107°



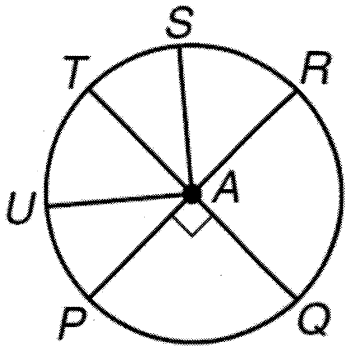
In circle P, $m\angle GPH = 38°$. Find each measure.

7. $m\overset{\frown}{EF}$ 38°
8. $m\overset{\frown}{DE}$ 52°
9. $m\overset{\frown}{FG}$ 142°
10. $m\overset{\frown}{DG}$ 128°
11. $m\overset{\frown}{DFG}$ 232°
12. $m\overset{\frown}{DGE}$ 308°
13. $m\overset{\frown}{EHG}$ 180°
14. $m\overset{\frown}{EFH}$ 218°



In circle A, $m\angle PAU = 40°$ and $m\angle TAS = 35°$. *PR* and *TQ* are diameters. Find the length of each arc if the diameter of the circle is 20 cm.

15. $\overset{\frown}{UP}$ 6.98 cm
16. $\overset{\frown}{UT}$ 8.73 cm
17. $\overset{\frown}{TR}$ 15.71 cm
18. $\overset{\frown}{PQR}$ 31.42cm
19. $\overset{\frown}{PRS}$ 41.02 cm
20. $\overset{\frown}{TQU}$ 54.11 cm



Review

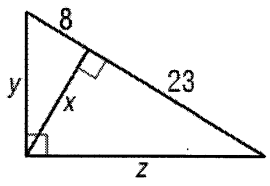
21. The ratio of the angle measures in a triangle is 7:13:16. What are the measures of each angle?

$35^\circ, 65^\circ, 80^\circ$

22. A lighthouse casts a 130-foot shadow. A nearby lamppost that measures 5.75 feet casts an 7.5-foot shadow. **Make a sketch of the situation.** Write a proportion that could be used to determine the height of the lighthouse. Then solve the proportion.

99.67 feet

23. Find the values of x, y and z.



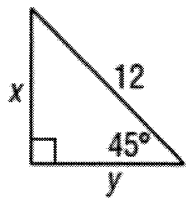
$x = 13.56$

$y = 15.75$

$z = 26.70$

Find the values of x and y. Write your answer in simplest radical (square root) form.

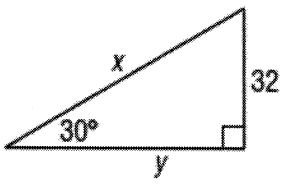
24.



$x = 6\sqrt{2}$

$y = 6\sqrt{2}$

25.



$x = 64$

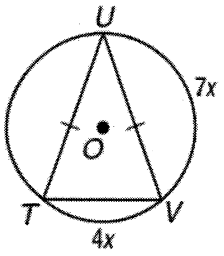
$y = 32\sqrt{3}$

Geometry B
9.3 Arcs and Chords

Name _____
Hour _____ **Date** _____

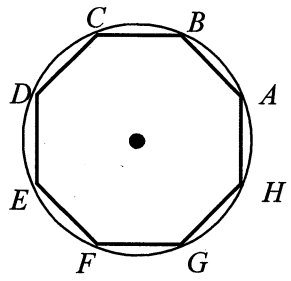
ASSIGNMENT

1. Find $m\overset{\frown}{TU}$.



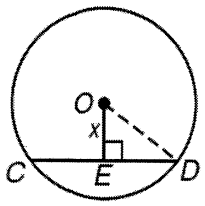
140°

2. Find $m\overset{\frown}{AC}$ (assume the polygon is regular)



90°

3. In circle O, $OD = 15$ and $CD = 24$. Find x.



$x = 9$

In circle E, $HI = JK$, $HP = 7.5$ and $m\overset{\frown}{HQ} = 48$. Find each measure.

4. $m\overset{\frown}{HI}$ 96°

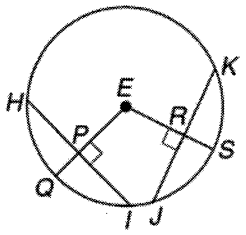
5. $m\overset{\frown}{QI}$ 48°

6. $m\overset{\frown}{JK}$ 96°

7. HI 15

8. PI 7.5

9. JK 15



If circle P has a diameter of 40 inches and $AC = FD = 24$ inches, find each measure.

10. PA 20 in

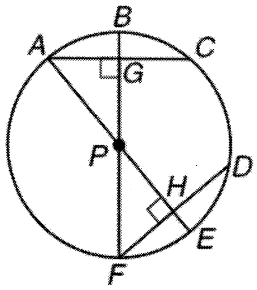
11. AG 12 in

12. PE 20 in

13. PH 16 in

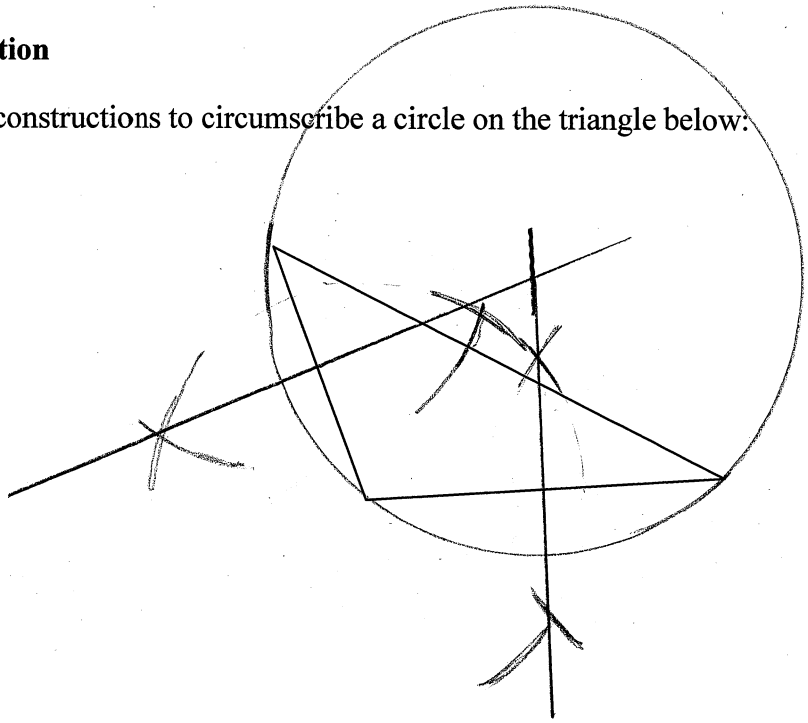
14. HE 4 in

15. FG 36 in



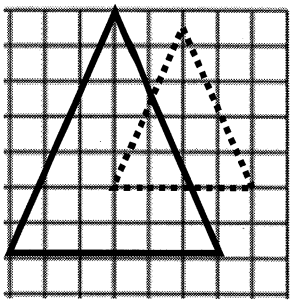
Construction

16. Use constructions to circumscribe a circle on the triangle below:



Review:

17. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. The dashed figure is the dilation image.

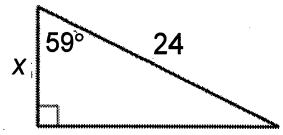


Type of dilation: reduction

Scale factor: 2/3

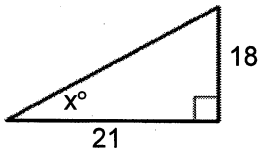
Find the value of *x*. Round to the nearest tenth.

18.



$x = 12.4$

19.



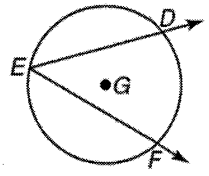
$x = 40.6^\circ$

Geometry B
9.4 Inscribed Angles

Name _____
Hour _____ **Date** _____

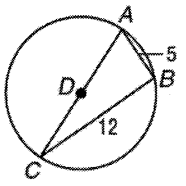
ASSIGNMENT

1. If $m\angle DEF = 52°$, find $m\overset{\frown}{DF}$.



104°

2. Find AD



6.5

3. If $m\angle 1 = 5x - 2$ and $m\angle 2 = 2x + 8$,

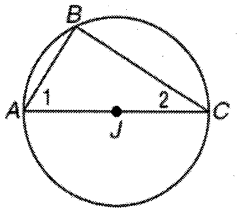
a. find x. 12

b. find $m\angle 1$ 58°

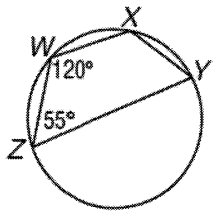
c. find $m\angle 2$ 32°

d. find $m\overset{\frown}{AB}$ 64°

e. find $m\overset{\frown}{BC}$ 116°

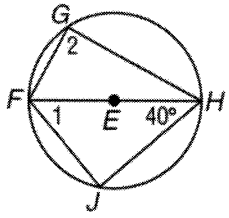


4. Find $m\angle X$ and $m\angle Y$ in the figure below.



$m\angle X = 125°$
$m\angle Y = 60°$

5. Find $m\angle 1$ and $m\angle 2$ in the figure below.



$m\angle 1 = 50°$
$m\angle 2 = 90°$

In circle S, $m\overset{\frown}{KL} = 80$, $m\overset{\frown}{LM} = 100$ and $m\overset{\frown}{MN} = 60$. Find the measure of each angle.

6. $m\angle 1$ 50°

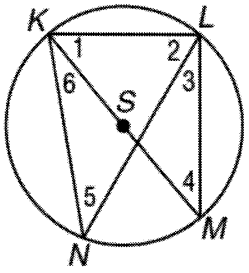
7. $m\angle 2$ 60°

8. $m\angle 3$ 30°

9. $m\angle 4$ 40°

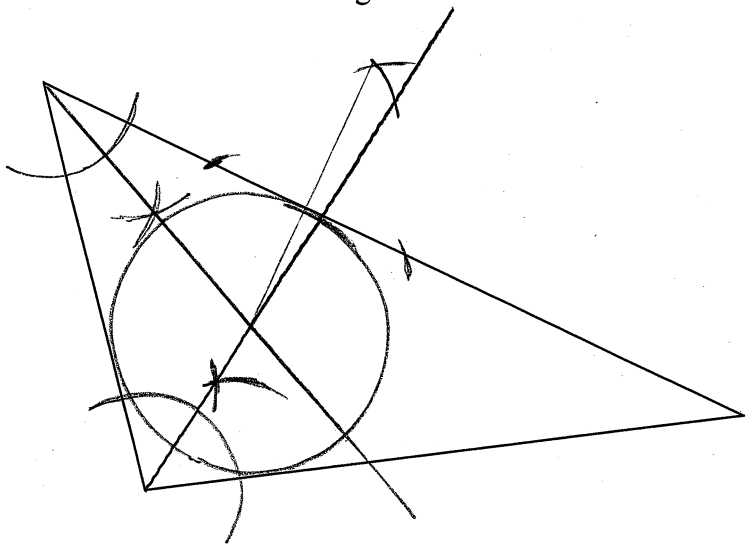
10. $m\angle 5$ 40°

11. $m\angle 6$ 30°



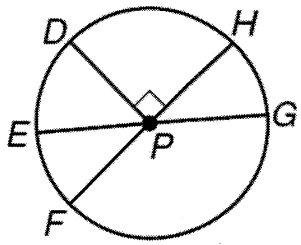
Construction

12. Use constructions to inscribe a circle in the triangle below:



Review:

In circle P, $m\angle EPD = 41°$ and $FP = 12$ cm.



13. Find $m\overset{\frown}{EH}$ 131°

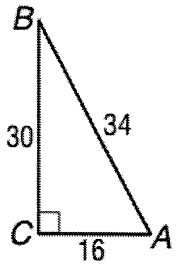
14. Find $m\overset{\frown}{DGE}$ 319°

15. Find the length of $\overset{\frown}{EH}$. 27.4 cm

16. Find the length of $\overset{\frown}{DGE}$ 66.8 cm

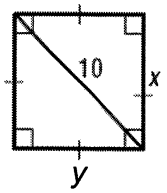
17. Find cos B.

A. $\frac{8}{15}$ B. $\frac{15}{8}$ C. $\frac{8}{17}$ (D.) $\frac{15}{17}$



18. Find exact values of x and y in the triangles below.

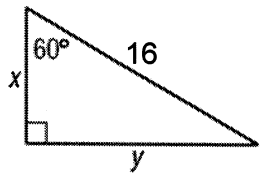
a.



$x = 5\sqrt{2}$

$y = 5\sqrt{2}$

b.



$x = 8$

$y = 8\sqrt{3}$

Geometry B
9.5 Tangents

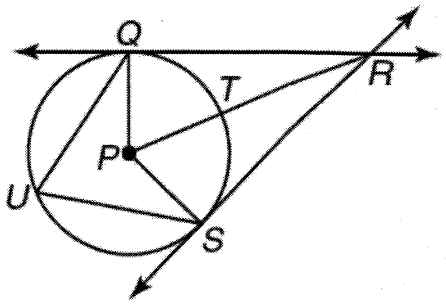
Name _____
Hour _____ **Date** _____

ASSIGNMENT

For #1-6, use circle *P* at the right. Match each term with an example from the circle. Some figures in the second column may be used more than once or not at all.

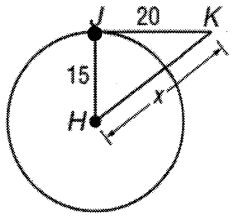
1. a line that is tangent to circle *P* G
2. a chord of the circle D
3. a radius of the circle A
4. a minor arc F
5. a central angle C
6. an inscribed angle H

A. $\overline{PQ}$
B. $\overleftrightarrow{PR}$
C. $\angle TPS$
D. $\overline{SU}$
E. $\overset{\frown}{TQS}$
F. $\overset{\frown}{SU}$
G. $\overleftrightarrow{QR}$
H. $\angle PQU$



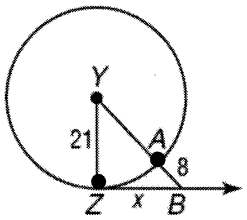
In #7-9, find *x*. Assume that segments that appear to be tangent are tangent.

7.



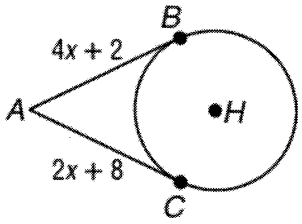
25

8.



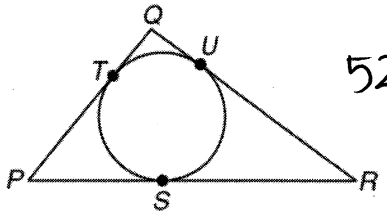
20

9.



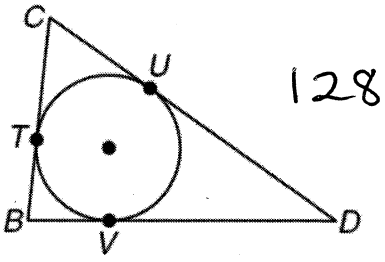
x = 3

10. Find the perimeter of ΔQPR if $QT = 4$, $PT = 9$ and $SR = 13$.



52

11. Find the perimeter of ΔCBD if $CU = 18$, $CD = 52$ and $TB = 12$.



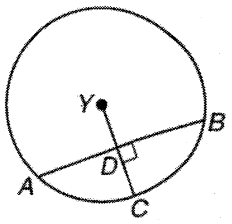
128

Review:

The radius of circle Y is 20, $AB = 32$ and $m\,AB = 106$. Find each measure.

12. $m\overset{\frown}{AC}$ 53°

13. $m\overset{\frown}{BC}$ 53°



14. AD 16

15. BD 16

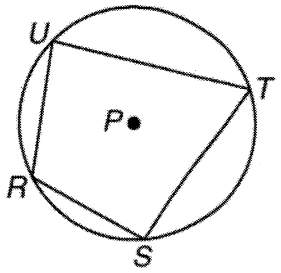
16. YD 12

17. DC 8

Quadrilateral $RSTU$ is inscribed in circle P such that $m\overset{\frown}{STU} = 220$ and $m\angle S = 95$. Find each measure.

18. $m\angle R$ 110°

19. $m\angle T$ 70°



20. $m\angle U$ 85°

21. $m\overset{\frown}{SRU}$ 140°

22. $m\overset{\frown}{RUT}$ 190°

23. $m\overset{\frown}{RST}$ 170°

24. A ladder leaning against a building makes an angle of 55° with the ground. If the ladder is 30 feet long, how far up the building will the ladder reach? Round to the nearest tenth.

24.6 feet

Geometry B
9.6 Equations of Circles

Name _____
Hour _____ **Date** _____

ASSIGNMENT

$$(x-h)^2+(y-k)^2=r^2$$

Write an equation for each circle.

1. center at (2, -4), $d = 2$

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

2. center at the origin, $r = 8$

$x^2+y^2=64$

3. center at (-6, 0), radius = 7

$(x+6)^2+y^2=49$

For each of the following equations, identify the specified information.

4. $(x+2)^2+(y-1)^2=196$

center: $(-2,1)$ diameter: 28

5. $x^2+(y+4)^2=900$

center: $(0,-4)$ radius: 30

6. $(x+19)^2+(y+14)^2=121$

center: $(-19,-14)$ diameter: 22

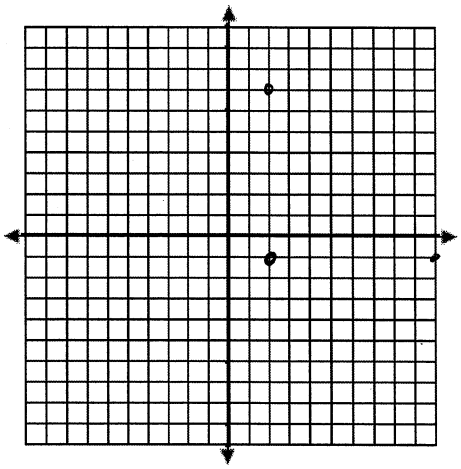
7. Find the circumference of the circle given by the equation $(x-50)^2+(y+76)^2=1600$. Round to the nearest hundredth.

251.33

For 8 and 9, find the center and radius of each circle. Then graph the circle.

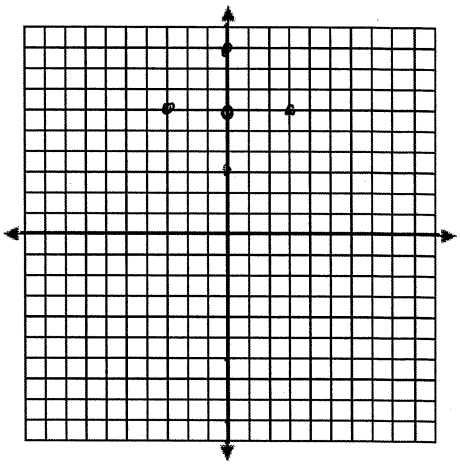
8. $(x-2)^2+(y+1)^2=64$

center: $(2,-1)$ radius: 8

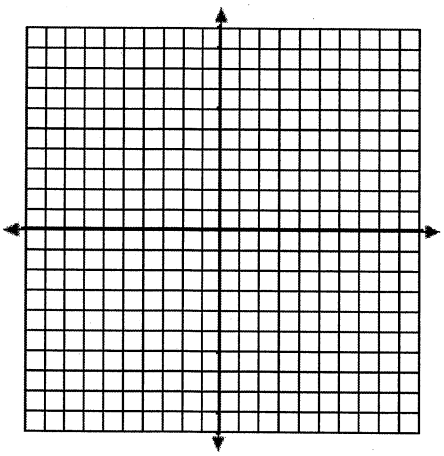


9. $x^2+(y-6)^2=9$

center: $(0,6)$ radius: 3

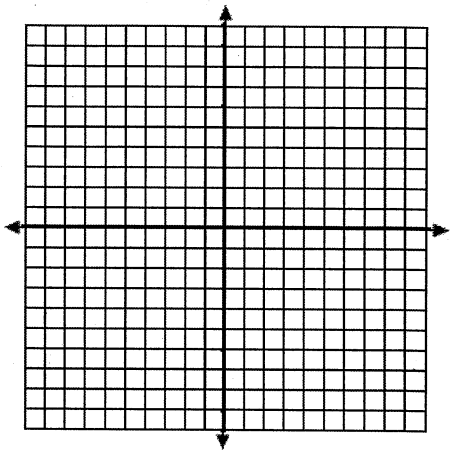


10. Write an equation of the circle whose diameter has an endpoint at (2, 2) and a center at (5, 0). You may use the graph below to help you visualize the problem.



Equation: $(x-5)^2 + y^2 = 13$

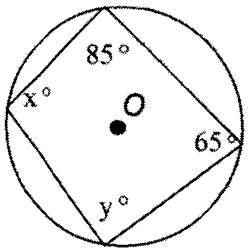
11. Write an equation of the circle whose diameter has endpoints at (-3, -4) and (-1, 2). You may use the graph below to help you visualize the problem.



Equation: $(x+2)^2 + (x+1)^2 = 10$

Review:

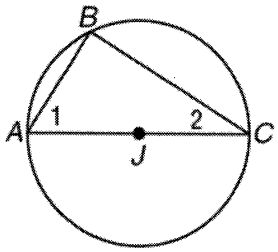
12. Find the value of x and y in the figure below.



$x = 115°$

$y = 95°$

13. In circle J, $m\angle 1 = 62$.



a. find $m\angle ABC$ $90°$

b. find $m\angle 2$ $28°$

c. find $m\overset{\frown}{AB}$ $56°$

d. find $m\overset{\frown}{BC}$ $124°$