Unit 10 – Circles – Day 1 – Circle Basics

For 1 – 4, write in the correct vocabulary word.

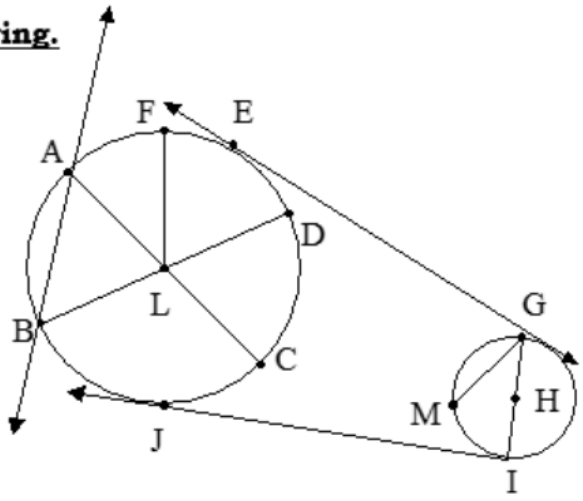
1. The radius is a segment between the center of the circle, and a point on the circle.

2. A segment whose endpoints are on the circle is a chord. The longest chord is the diameter.

3. A radius is half of the diameter.

4. A diameter divides a circle in two equal parts.

Use the diagram for 5 – 9, name all of the following.



5. Radii

$\overline{LA}, \overline{LB}, \overline{LC}, \overline{LD}, \overline{LF}, \overline{HG}, \overline{HI}$

6. Centers

L and H

7. Diameters

$\overline{AC}, \overline{BD}, \overline{GI}$

8. Chords

$\overline{AB}, \overline{MG}$

9. Name of each Circle

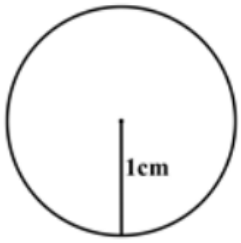
Use the information to find the area and circumference of each circle. Please leave all answers in terms of π.

10.

Area: 144π

Circumference: 24π

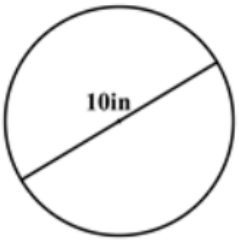
11.



Area: π

Circumference: 2π

12.



Area: 25π

Circumference: 10π

13. Find the radius of a circle that has a diameter of 15 inches.

$7.5 \ inches$

14. Find the diameter of a circle with an area of $36\pi \ in^2$.

$12 \ in$

15. What is the area of a circular pool that has a circumference of $100\pi \ feet$?

$2500\pi \ ft^2$

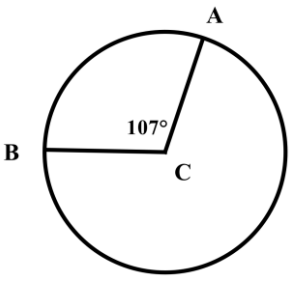
16. The diameter of a circular pizza pan is 18 *inches*. Two-thirds of the pizza is eaten by your friends. What is the approximate area of the pizza pan that is covered by the remaining pizza?

$27\pi \ in^2$

Unit 10 – Circles – Day 2 – Central Angles and Arc Length

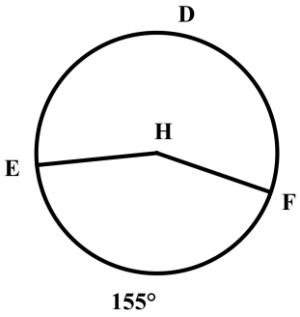
Find the following:

1. $m\widehat{AB}$



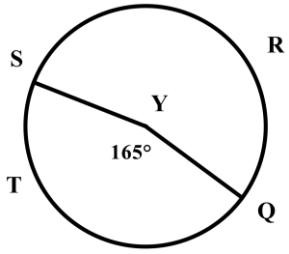
$mAB = 107^\circ$

2. $m\angle EHF$



$m\angle EHF = 155^\circ$

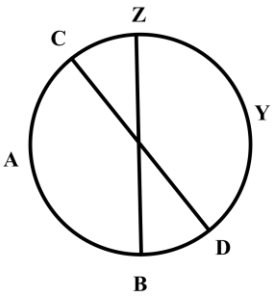
3. $m\widehat{QRS}$



$m\angle A = 195^\circ$

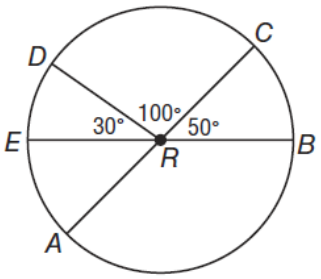
4. $m\widehat{CYD}$

ZB is a diameter



$m\angle EHF = 180^\circ$

$\overline{AC}$ and $\overline{EB}$ are diameters of ⊙R. Identify each arc as a *major arc*, *minor arc*, or *semicircle* of the circle. Then find its measure.



1. $m\widehat{EA}$ $mEA = 50^\circ$

2. $m\widehat{CB}$ $mCB = 50^\circ$

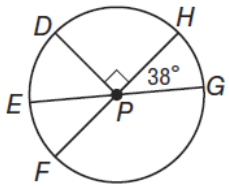
3. $m\widehat{DC}$ $mDC = 100^\circ$

4. $m\widehat{DEB}$ $mDEB = 210^\circ$

5. $m\widehat{AB}$ $mAB = 130^\circ$

6. $m\widehat{CDA}$ $mDEB = 180^\circ$

$\overline{FH}$ and $\overline{EG}$ are diameters of ⊙P. Find each measure.



7. $m\widehat{EF}$ $mEF = 38^\circ$

8. $m\widehat{DE}$ $mDE = 52^\circ$

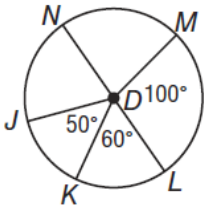
9. $m\widehat{FG}$ $mFG = 142^\circ$

10. $m\widehat{DHG}$ $mDHG = 128^\circ$

11. $m\widehat{DFG}$ $mDFG = 232^\circ$

12. $m\widehat{DGE}$ $mDHE = 308^\circ$

Use $\odot D$ to find the length of each arc. Round to the nearest hundredth.



15. $\overset{\frown}{LM}$ if the radius is 5 inches

$$LM = \frac{25}{9}\pi = 8.72$$

16. $\overset{\frown}{MN}$ if the diameter is 3 yards

$$MN = \frac{2}{3}\pi = 2.09$$

17. $\overset{\frown}{KL}$ if $JD = 7$ centimeters

$$KL = \frac{7}{3}\pi = 7.33$$

18. $\overset{\frown}{NJK}$ if $NL = 12$ feet

$$NJK = 4\pi = 12.56$$

19. $\overset{\frown}{KLM}$ if $DM = 9$ millimeters

$$KLM = 8\pi = 25.12$$

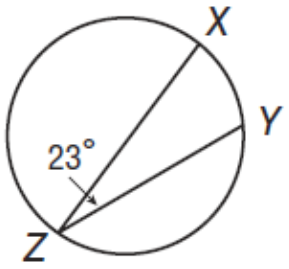
20. $\overset{\frown}{JK}$ if $KD = 15$ inches

$$JK = \frac{25}{6}\pi = 13.08$$

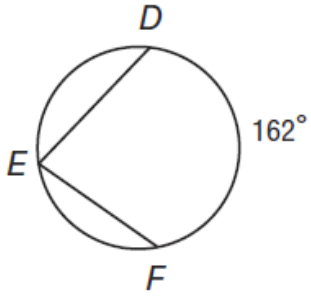
Unit 10 – Circles – Day 3 – Inscribed Angles

Find the following measures.

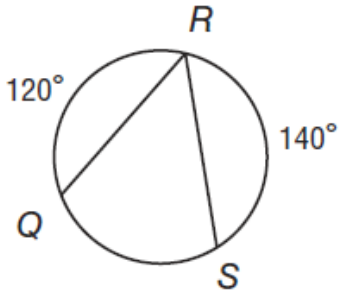
1. $m\overset{\frown}{XY}$ 46°



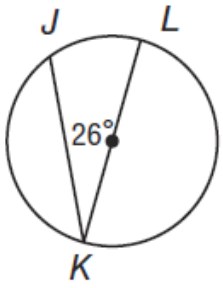
2. $m\angle E$ 81°



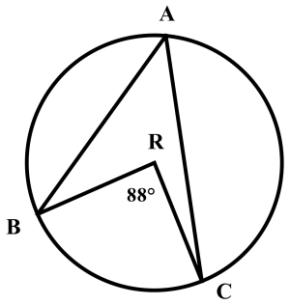
3. $m\angle R$ 50°



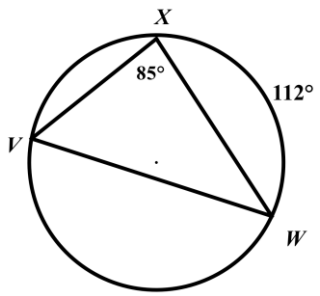
4. $m\overset{\frown}{JK}$ 128°



5. $m\angle BAC$ 44°



6. $m\angle VWX$ 29°



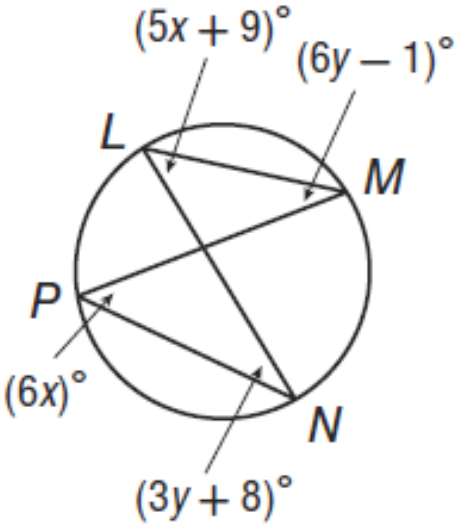
Find the measure of the following

7. $x =$ 9

8. $y =$ 3

9. $m\angle N =$ 17°

10. $m\angle L =$ 54°

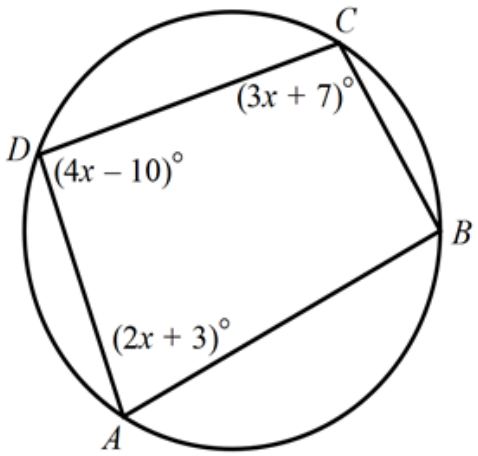


Find the measure of the following

11. $m\angle A =$ 18°

12. $m\angle B =$ 21

13. $m\angle C =$ 79°

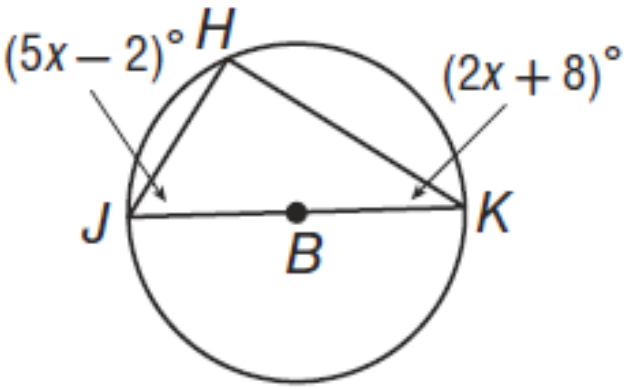


Find the measure of the following

14. $x =$ 12

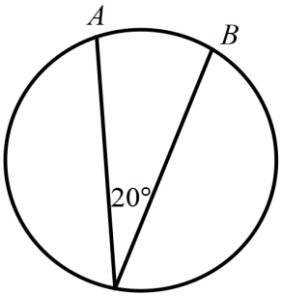
16. $m\angle J =$ 58

18. $m\angle H =$ 90°



19. What is the <u>length</u> of the minor arc $\overset{\frown}{AB}$ in the circle with a radius of 45 *cm* ?

10π

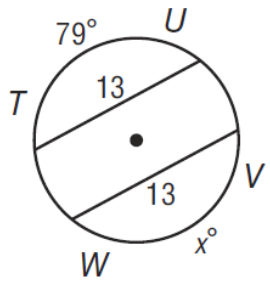


Unit 10 – Circles – Day 4 – Arcs and Chords

Find the following.

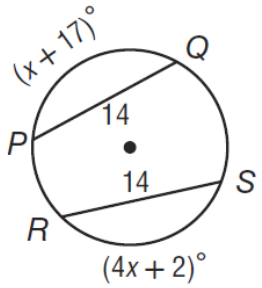
Find the following.

1. x



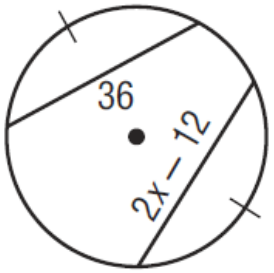
$x = 79$

2. x



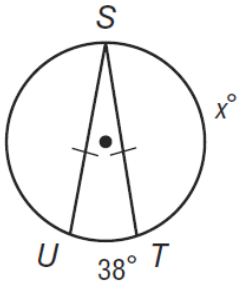
$x = 5$

3. x



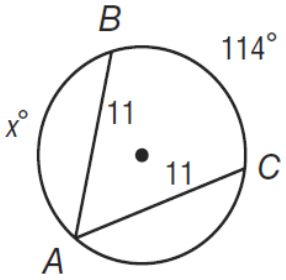
$x = 24$

4. $m\widehat{ST}$



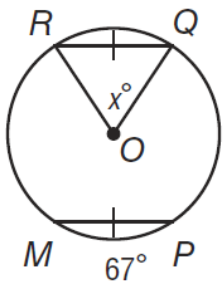
$x = 161$

5. $m\widehat{AB}$



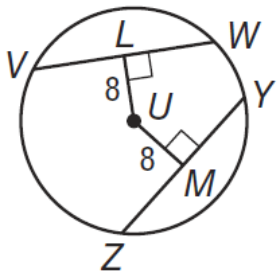
$x = 123$

6. x



$x = 67$

7. If $VW = 20$, & $YZ = 5x$, *find* x

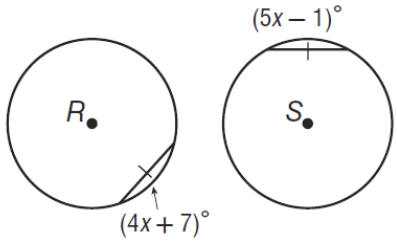


$x = 4$

8. x

$x = 8$

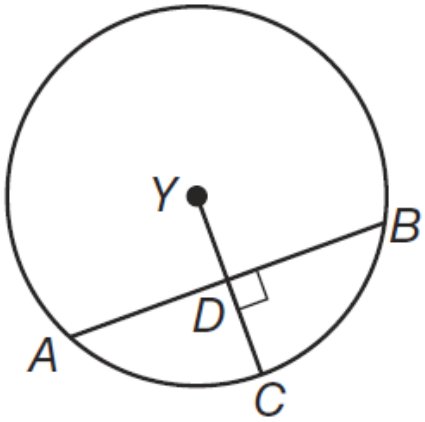
$\odot R \cong \odot S$



The radius of circle Y is 34, $AB = 60$, and $m\widehat{AC} = 71$. Find each of the following, round to the nearest hundredth if necessary.

9. $m\widehat{BC}$ 71°

10. $m\widehat{AB}$ 142°



11. AD 30

12. DC 18

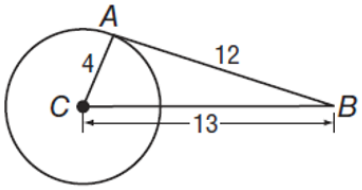
13. YD 16

14. AB 60

Unit 10 – Circles – Day 5 – Tangents

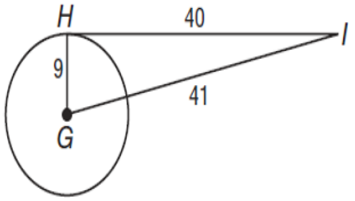
Determine whether each segment is tangent to the given circle and justify your answer.

1.



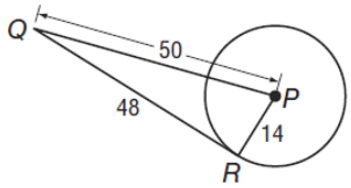
No

2.



Yes

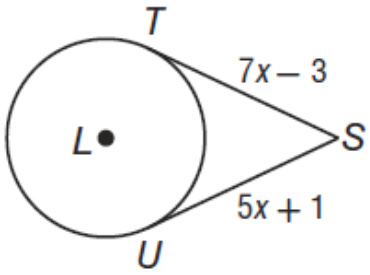
3.



Yes

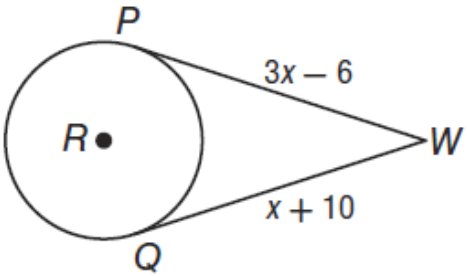
Find the of the following

4. x



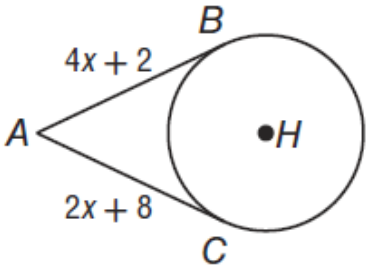
$x = 2$

5. QW



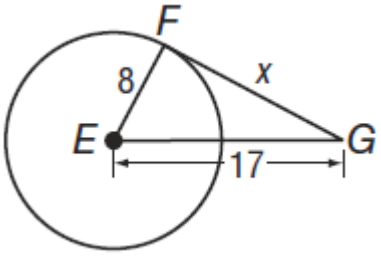
$x = 8$

6. AB

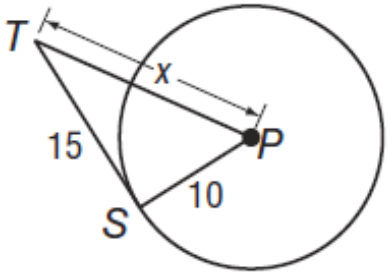


$x = 3$

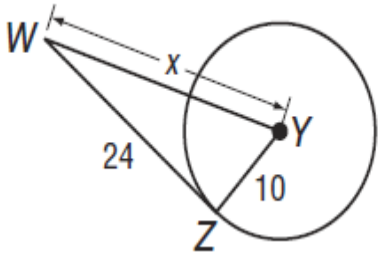
8. *FG* $x = 15$



9. *TP* $x = 5\sqrt{13}$

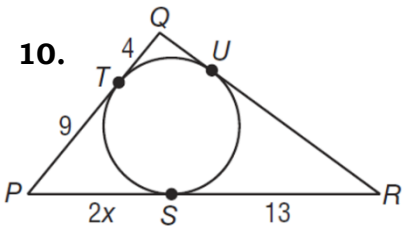


10. *x* $x = 26$

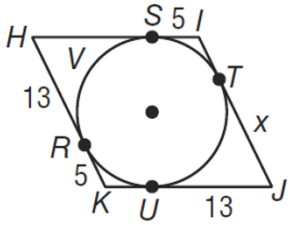


Find the value of *x* and the perimeter of each polygon.

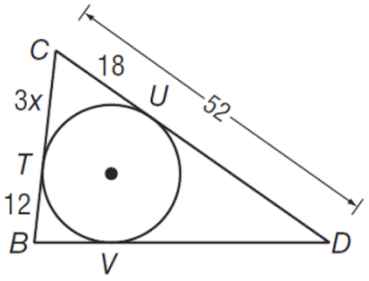
10.



11.



12.



x = $x = 4.5$

Perimeter = 52

x = 13

Perimeter = 72

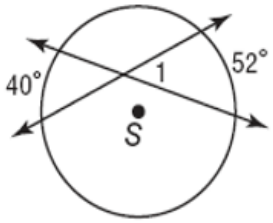
x = 6

Perimeter = 128

Unit 10 – Circles – Day 6 – Angle Relationships in a Circle

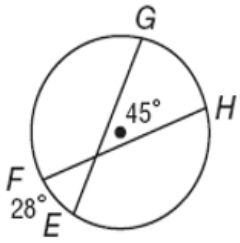
Find the measure of the following. Assume that all segments that appear to be tangent are tangent.

1. $m\angle 1$



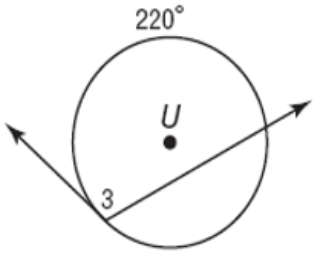
$m\angle 1 = 46$

2. $m\overset{\frown}{GH}$



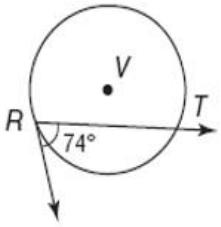
$mGH = 62$

3. $m\angle 3$



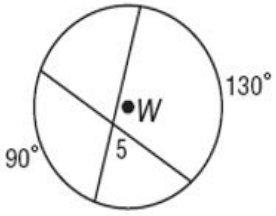
$m\angle 3 = 110$

4. $m\overset{\frown}{RT}$



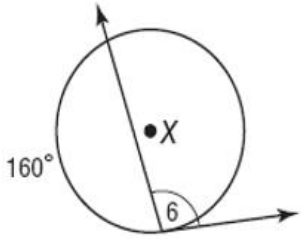
$mRT = 148$

5. $m\angle 5$



$m\angle 5 = 70$

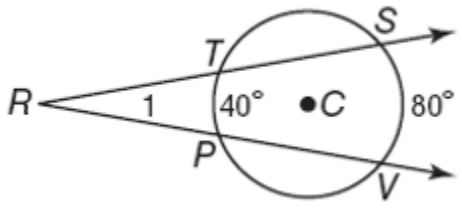
6. $m\angle 6$



$m\angle 6 = 100$

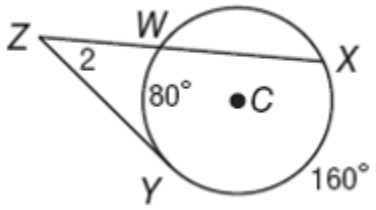
Find the measure of the following. Assume that all segments that appear to be tangent are tangent.

1. $m\angle 1$



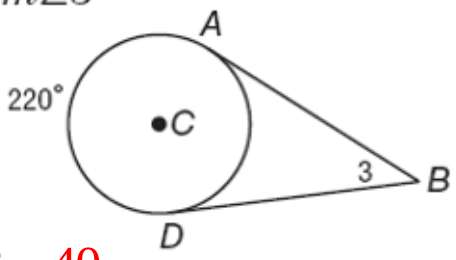
$m\angle 1 = 20$

2. $m\angle 2$



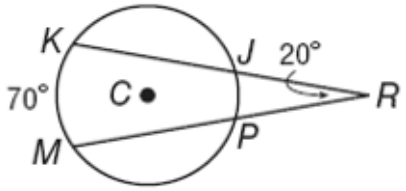
$m\angle 2 = 40$

3. $m\angle 3$



$m\angle 3 = 40$

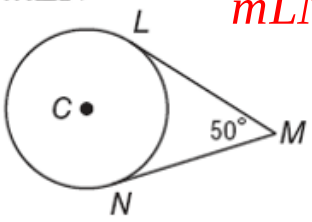
4. $m\overset{\frown}{JP}$



$mJP = 30$

5. $m\overset{\frown}{LN}$

$mLN = 130$



6. $m\angle V$

$m\angle V = 15$