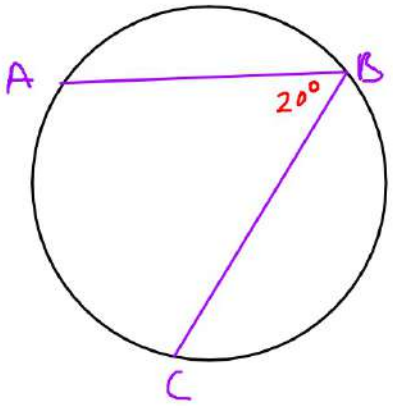
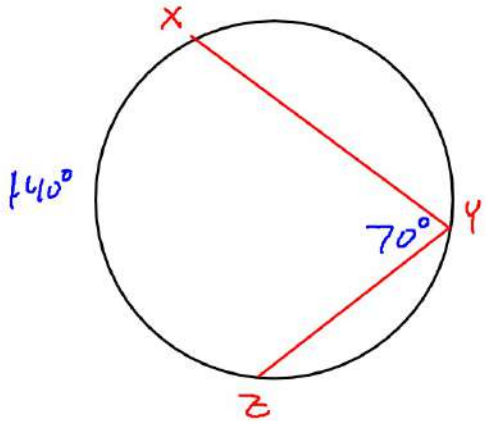
Inscribed Angle - An Angle whose vertex is on the Circle

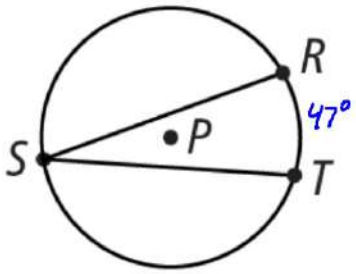
Measure of the angle is half the intercepted Arc



The measure of an inscribed angle is half the measure of its intercepted arc.



1. Given $\odot P$ with inscribed angle $\angle S$, if $m\overset{\frown}{RT} = 47$, what is $m\angle S$?



Enter your answer

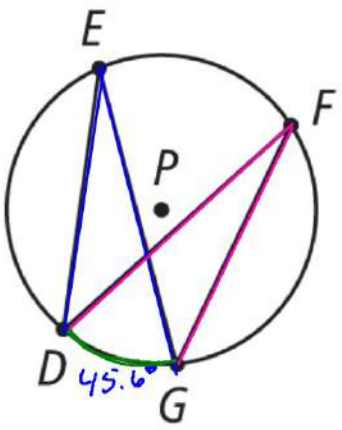
$m\angle S = \frac{1}{2}(47)$

$= 23.5^\circ$

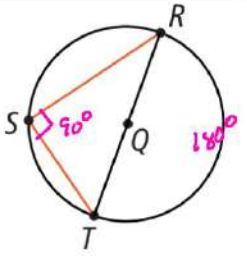
A. If $m\overset{\frown}{DG} = 45.6$, what are $m\angle E$ and $m\angle F$?

$m\angle E = 22.8$

$m\angle F = 22.8$



B. If $\overset{\frown}{RT}$ is a semicircle, what is $m\angle RST$?

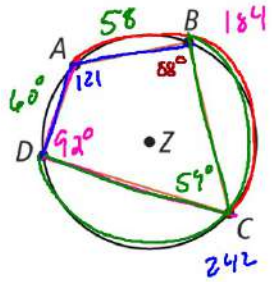


SOLUTION

$m\angle RST = 90°$

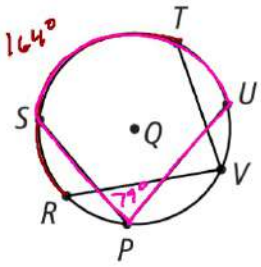
C. If $m\overset{\frown}{ABC} = 184$ and $m\overset{\frown}{BCD} = 242$, what are the measures of the angles of quadrilateral $ABCD$?

SOLUTION



2. a. If $m\overset{\frown}{RST} = 164$, what is $m\angle RVT$?

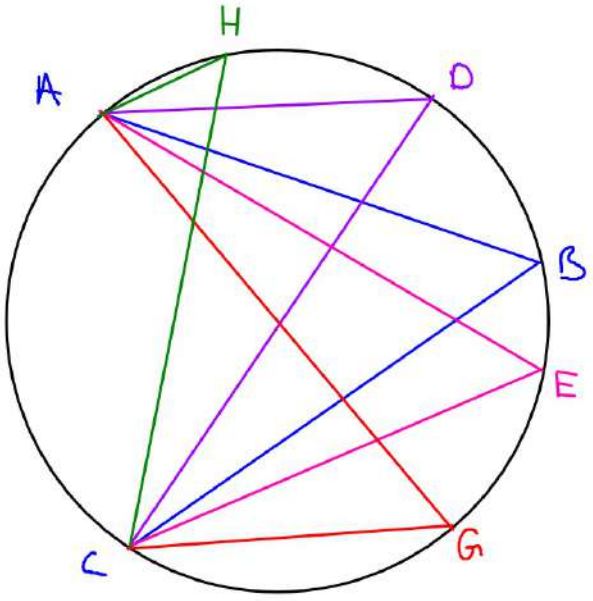
Enter your answer. 82°



b. If $m\angle SPU = 79$, what is $m\overset{\frown}{STU}$?

158°

Two inscribed angles that intercept the same arc are congruent.



For questions 11-15, use the figure below. Find each measure.

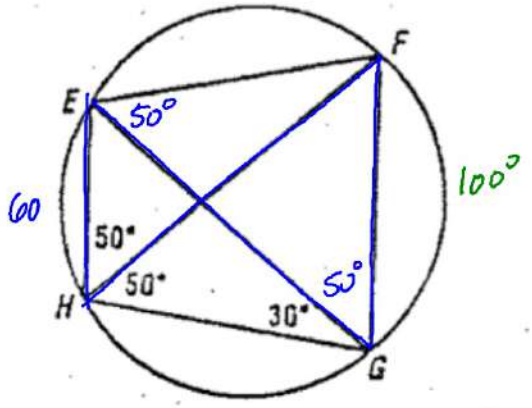
11. $m\widehat{FG} = 100^\circ$

12. $m\angle FEG = 50^\circ$

13. $m\widehat{EH} = 60^\circ$

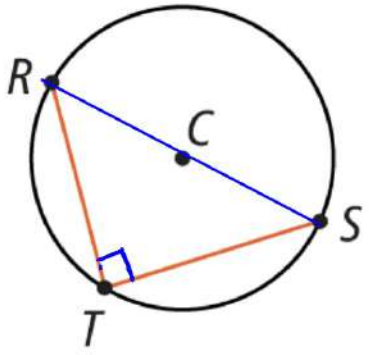
14. $m\angle EFH = 30^\circ$

15. $m\angle FGE = 50^\circ$



An angle inscribed in a semicircle is a right angle.

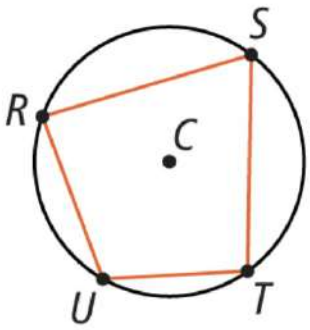
If... $m\overset{\frown}{RS} = 180$

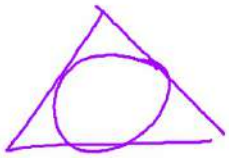


Then... $m\angle T = 90$

The opposite angles of an inscribed quadrilateral are supplementary.

If...

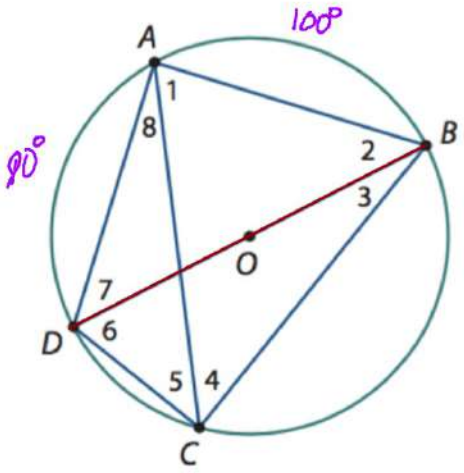




Then... $m\angle R + m\angle T = 180$

$m\angle S + m\angle U = 180$

In the diagram below, $\overline{BD}$ is a diameter of the circle with center O. Points A, B, C, and D are on the circle.



$m\angle 1$

$m\angle 2 = \cancel{65}$ 40°

$m\angle 3 = \cancel{35}$

$m\angle 4 = 50^\circ$

$m\angle 5 = 40^\circ$

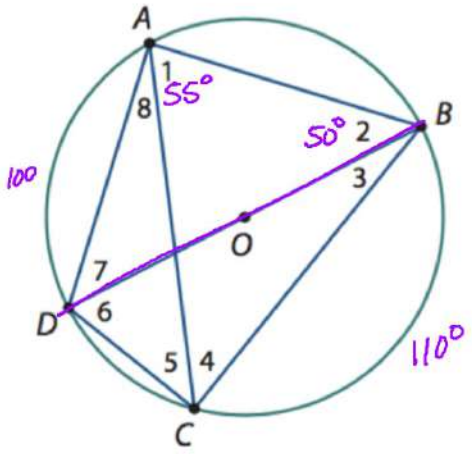
$m\angle 6 = \cancel{65}$

$m\angle 7 = 50^\circ$

$m\angle 8 =$

If measure of arc AB = 100°, find the measure of as many possible numbered angles as possible.

In the diagram below, $\overline{BD}$ is a diameter of the circle with center O. Points A, B, C, and D are on the circle.



$\overset{\frown}{mAB} = 80^\circ$

$\overset{\frown}{mBC} = 110^\circ$

$\overset{\frown}{mCD} = 70^\circ$

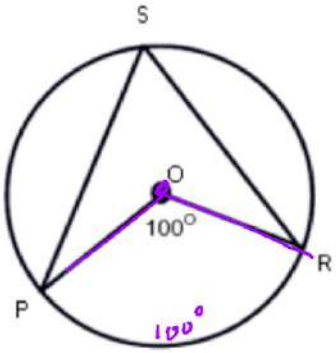
$\overset{\frown}{mAD} = 100^\circ$

Given the two measures $m\angle 1 = 55°$ *and* $m\angle 2 = 50°$, find the measures of the four minor arcs AB, BC, CD, and DA.

4) $m\angle POR = 100°$

$m\overset{\frown}{PR} =$ 100°

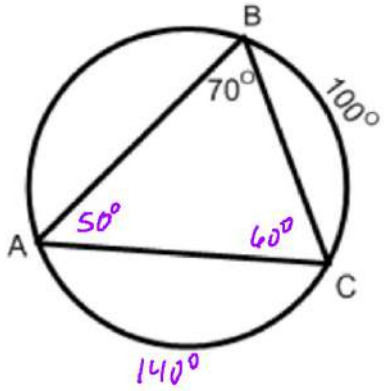
$m\angle PSR =$ 50°



5) $m\angle ABC = 70°$, $m\overset{\frown}{BC} = 100°$

$m\overset{\frown}{AC} =$ 140° $m\angle C =$ 60°

$m\angle A =$ 50° $m\overset{\frown}{AB} =$ 120°

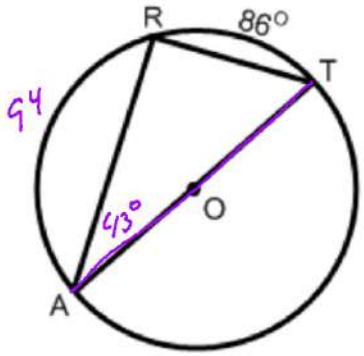


6) $\overline{AT}$ is a diameter,

$m\overset{\frown}{RT} = 86°$

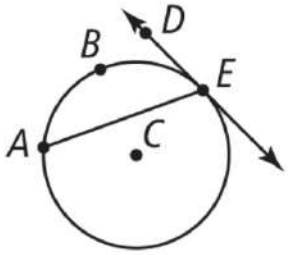
$m\angle A =$ 43° $m\angle R =$ 90°

$m\angle T =$ 47 $m\overset{\frown}{AR} =$ 94



The measure of an angle formed by a tangent and a chord is half the measure of its intercepted arc.

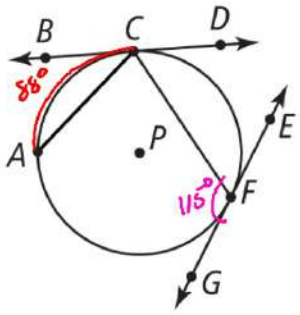
If...



Then... $m\angle AED = \frac{1}{2} m\overset{\frown}{ABE}$

3. a. Given $\overleftrightarrow{BD}$ tangent to $\odot P$ at point C, if $m\overset{\frown}{AC} = 88$, what is $m\angle ACB$? = 44°

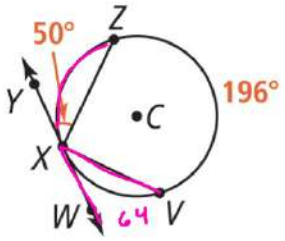
Enter your answer.



b. Given $\overleftrightarrow{EG}$ tangent to $\odot P$ at point F, if $m\angle GFC = 115$, what is $m\overset{\frown}{FAC}$? 230°

4. a. Given $\overleftrightarrow{WY}$ tangent to $\odot C$ at point X, what is $m\overset{\frown}{XZ}$? 100°

Enter your answer.



b. What is $m\angle VXW$? = 32°