Objective: The students will complete *Study Guide for Exam-6* and will demonstrate their understanding with an accuracy rate of 70% or higher on *Exam-6 Angles and Segments in Circles* on Monday
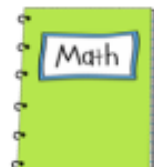
Standards   G-C.2. Identify and describe relationships among inscribed angles, radii, and chords.

WHAT DO YOU NEED?

Mathematics II

👉 A working *Chromebook*

👉 Math Notebook   Math

👉 Study Guide Exam-6: Angles and Segments in Circles

👉 TURN IN LATE OR MISSING WORK

If accuracy of 70% or higher is not achieved, the student(s) will be required to retake it.

You Tube

ELECTRONIC DEVICES

The following is a list of items that are not allowed for use in the classroom. Students who are in possession of any of these items will have them confiscated and subjected through proper disciplinary steps listed below. **The item will then be released to a parent or guardian.**

Electronic devices such as cell phones, MP3 players, I-pods, and video games must be picked up by parents after the second offense.

Delhi High School will not be financially responsible for banned electronic devices that are not permitted on campus. The school is not responsible for electronic devices that are picked up by those whom it was confiscated from who may or may not be the rightful owner. The school reserves the right to refuse to conduct any investigations concerning items that are not permitted on campus. Items that are misplaced or borrowed by other students are the sole responsibility of the student.

1st Offense requires that the cell phone/Ipod/device be impounded and returned to the student on Friday.
2nd Cell phone/Ipod/device impounded and released only to the parent.
3rd Offense requires a parent conference.
4th Offense may result in an out of school suspension for continued defiance.
   Items Not Allowed:
   - C.D. Players
   - MP3 Players
   - I-Pods
   - Video game devices
   - Cigarette Lighters
   - Hats

Expectations in this handbook: Preparing you for college and careers.
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May 2018   Q   Month ▼   ⚙   ⠿   🔔   👤

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		May 1 ✗	2 ✗	3 ✗	4 ✗	5 ~~Cinco de Mayo~~ ✗
6 ✗	7 ~~my.hrw.com 17.3 19.1~~ ✗	8 ~~Quiz 19~~ ✗	9 ~~PPT 17.4 PPT 19.2~~ ✗	10 ~~my.hrw.com 17.4 19.2~~ ✗	11 ~~Quiz-20~~ ✗	12 ✗
13 ~~Mother's Day~~ ✗	14 ~~Review PPT 19.2~~ ✗	15 (sub) ~~Exam-6 my.hrw.com~~ ✗	16 ~~Retake/Finish my.hrw.com~~ ✗	17 ~~Review for Final Quiz-21~~ ✗	18 (Quiz-?) Review for Final Review	19 ✗
20 ✗	21 Review for Final Exam-6	22 (Quiz-?) Review for Final Retake/Finish	23 Last Day for Late Work	24 Final Exam 10% of Grade	25 Final Exam 10% of Grade	26 ✗
27 ✗	28 Memorial Day No School	29 Make-up Final	30 Grades Due!!	31	Jun 1 Last Day	2

BY: STUDY-HACK.COM

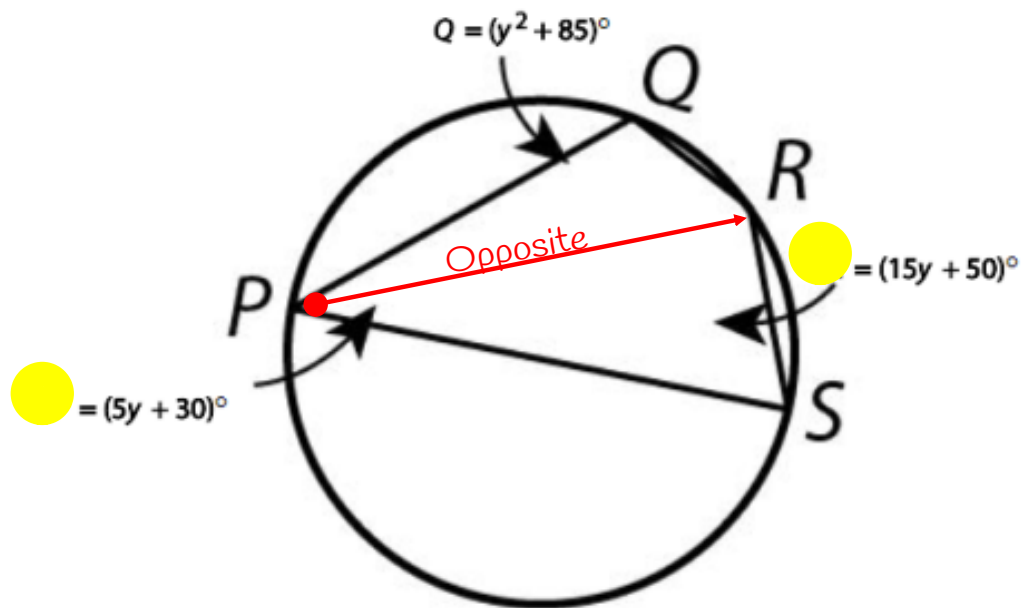# MAKING & USING A
STUDY GUIDE

Exam-6: Angles and Segments in Circles

Study Guide: helps you ①summarize, ②visualize, and analyze③ concepts learned in class

* Warning: simply making a study guide does not guarantee you an A+ on the test.

☑ Find the measures of each angle in the inscribed quadrilateral.

$Q = (y^2 + 85)^\circ$

Opposite

$= (15y + 50)^\circ$

$= (5y + 30)^\circ$

Find the value of y.
Supplementary angles

$$m\angle P + m\angle R = 180^\circ$$
$$5y + 30 + 15y + 50 = 180$$
$$20y + 80 = 180$$
$$20y = 100$$
$$y = 5$$

Find the measure of each angle.

$$m\angle P = 5(5) + 30$$
$$m\angle P = 55^\circ$$
$$m\angle R = 15(5) + 50$$
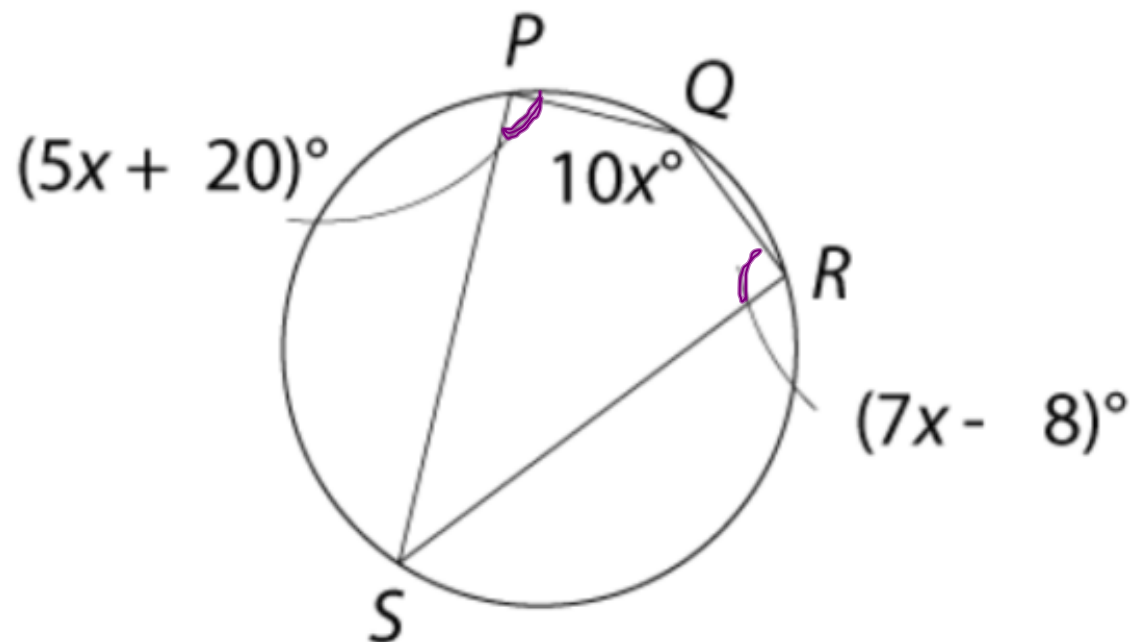$$m\angle R = 125^\circ$$
$$m\angle Q = (5)^2 + 85$$
$$m\angle Q = 110^\circ$$

Supplementary angles

$$m\angle S + m\angle Q = 180^\circ$$
$$m\angle S + 110 = 180^\circ$$
$$m\angle S = 70^\circ$$

2 Find the measures of each angle in the inscribed quadrilateral.

Find the value of x.

$$m\angle P + m\angle R = 180°$$
$$(5x + 20) + (7x - 8) = 180$$
$$12x + 12 = 180$$
$$12x = 168$$
$$x = 14$$

Find the measure of each angle.

$$m\angle P = (5x + 20) = 5(14) + 20 = 90°$$
$$m\angle R = (7x - 8) = 7(14) - 8 = 90°$$
$$m\angle Q = 10x = 10(14) = 140°$$
$$m\angle S + m\angle Q = 180°$$
$$m\angle S + 140° = 180°$$
$$m\angle S = 40°$$

So, $m\angle P = 90°$,
$m\angle Q = 140°$,
$m\angle R = 90°$,
$m\angle S = 40°$.

3   Find the measures of each angle in the inscribed quadrilateral.

A

$(4z + 1)°$

$(6z + 7)°$ B

D

$(17 + 5z)°$

C
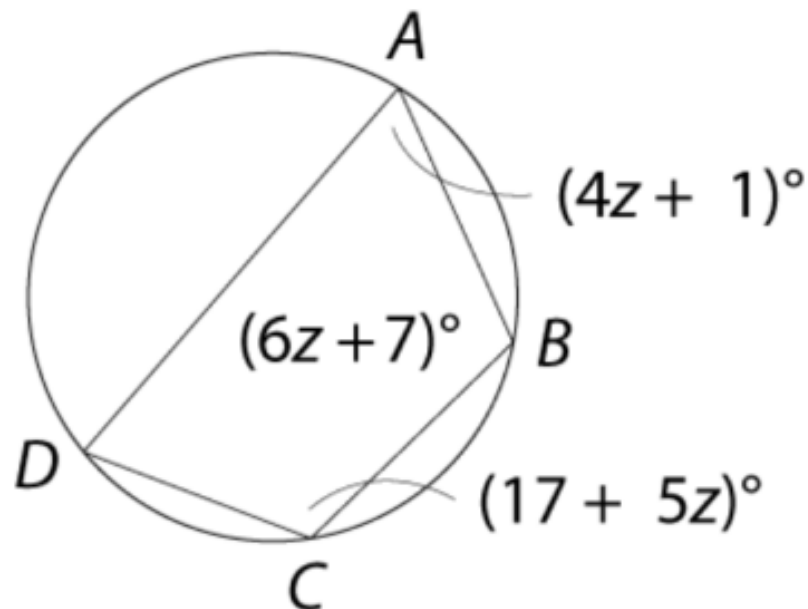
Find the value of z.

$$m\angle A + m\angle C = 180°$$
$$(4z + 1) + (17 + 5z) = 180$$
$$9z + 18 = 180$$
$$9z = 162$$
$$z = 18$$

Find the measure of each angle.

$$m\angle A = (4z + 1) = 4(18) + 1 = 73°$$
$$m\angle C = (17 + 5z) = 17 + 5(18) = 107°$$
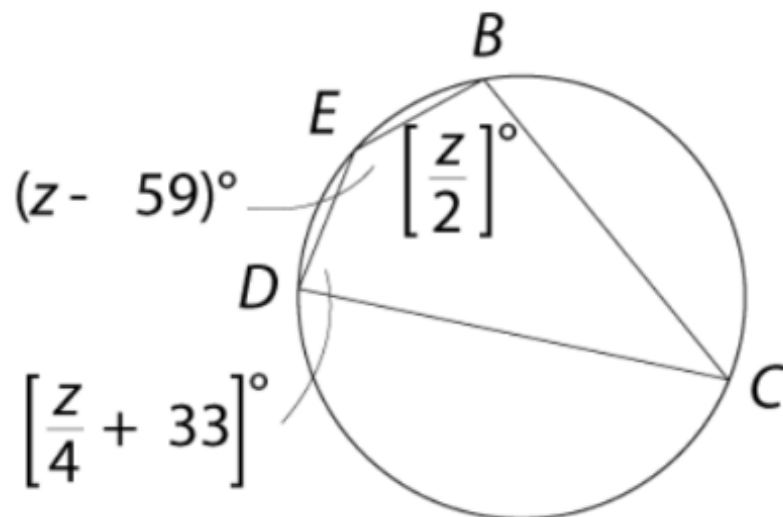$$m\angle B = 6z + 7 = 6(18) + 7 = 115°$$
$$m\angle D + m\angle B = 180°$$
$$m\angle D + 115° = 180°$$
$$m\angle D = 65°$$

So, $m\angle A = 73°$,

$m\angle B = 115°$,

$m\angle C = 107°$,

$m\angle D = 65°$.

4 Find the measures of each angle in the inscribed quadrilateral.

B

E

$(z - 59)°$

$\left[\dfrac{z}{2}\right]°$

D

$\left[\dfrac{z}{4} + 33\right]°$

C

Find the value of z.

$m\angle D + m\angle B = 180°$

$(\dfrac{z}{4} + 33) + \dfrac{z}{2} = 180$

$\dfrac{3z}{4} = 147$

$z = 196$

Find the measure of each angle.

$m\angle B = \dfrac{z}{2} = 98°$

$m\angle D = (\dfrac{z}{4} + 33) = 82°$

$m\angle E = z - 59 = 137°$

$m\angle C + m\angle E = 180°$
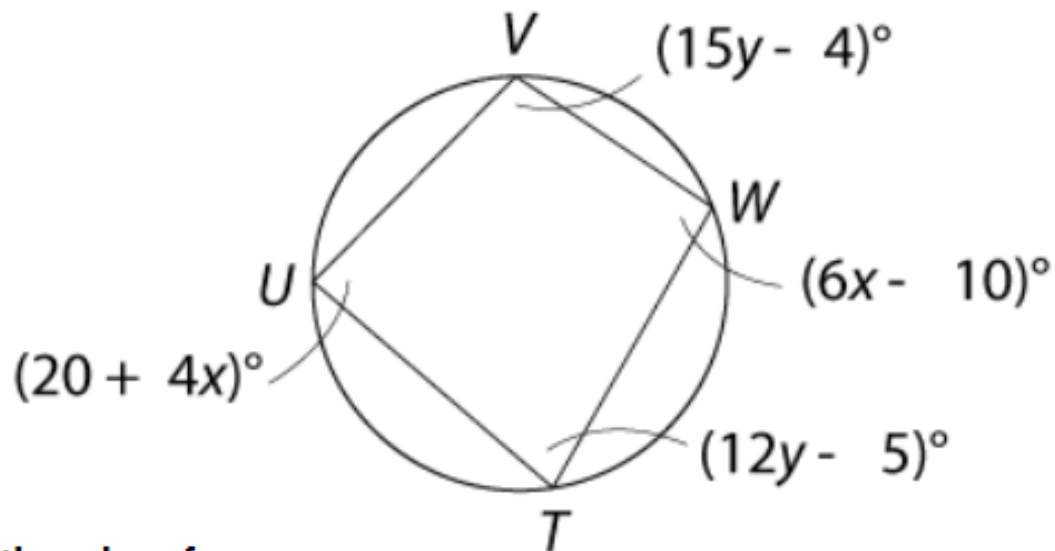
$m\angle C + 137° = 180°$

$m\angle C = 43°$

So, $m\angle B = 98°$,

$m\angle C = 43°$,

$m\angle D = 82°$,

$m\angle E = 137°$.

5 Find the measures of each angle in the inscribed quadrilateral.

V $(15y - 4)°$

W

$(6x - 10)°$

U

$(20 + 4x)°$

$(12y - 5)°$

T

Find the value of y.

$$m\angle T + m\angle V = 180°$$
$$(15y - 4) + (12y - 5) = 180$$
$$27y - 9 = 180$$
$$27y = 189$$
$$y = 7$$
$$m\angle V = (15y - 4) = 15(7) - 4 = 101°$$
$$m\angle T = (12y - 5) = 12(7) - 5 = 79°$$

Find the value of x.

$$m\angle U + m\angle W = 180°$$
$$(20 + 4x) + (6x - 10) = 180$$
$$10x + 10 = 180$$
$$x = 17$$
$$m\angle U = 20 + 4x = 20 + 4(17) = 88°$$
$$m\angle W = 6x - 10 = 6(17) - 10 = 92°$$

So, $m\angle T = 79°$,

$m\angle U = 88°$,

$m\angle V = 101°$,

$m\angle W = 92°$.

___6___ In the diagram, $m\overset{\frown}{JKL} = 198°$ and $m\overset{\frown}{KLM} = 214°$.
Find the measures of the angles of quadrilateral $JKLM$.
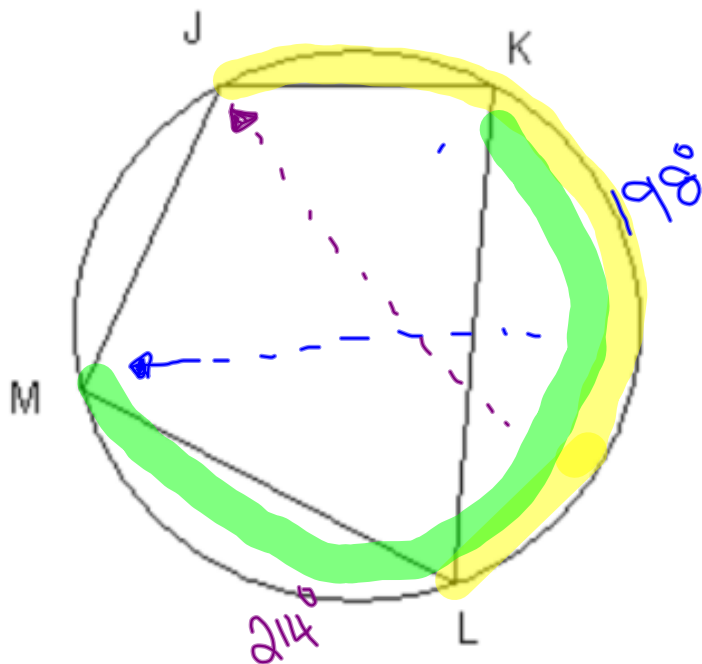
By the Inscribed Angle Theorem,

$$m\angle M = \frac{1}{2}m\overset{\frown}{JKL} = \frac{1}{2}(198°) = 99°.$$

Inscribed Angle Theorem,

$$m\angle J = \frac{1}{2}m\overset{\frown}{KLM} = \frac{1}{2}(214°) = 107°$$
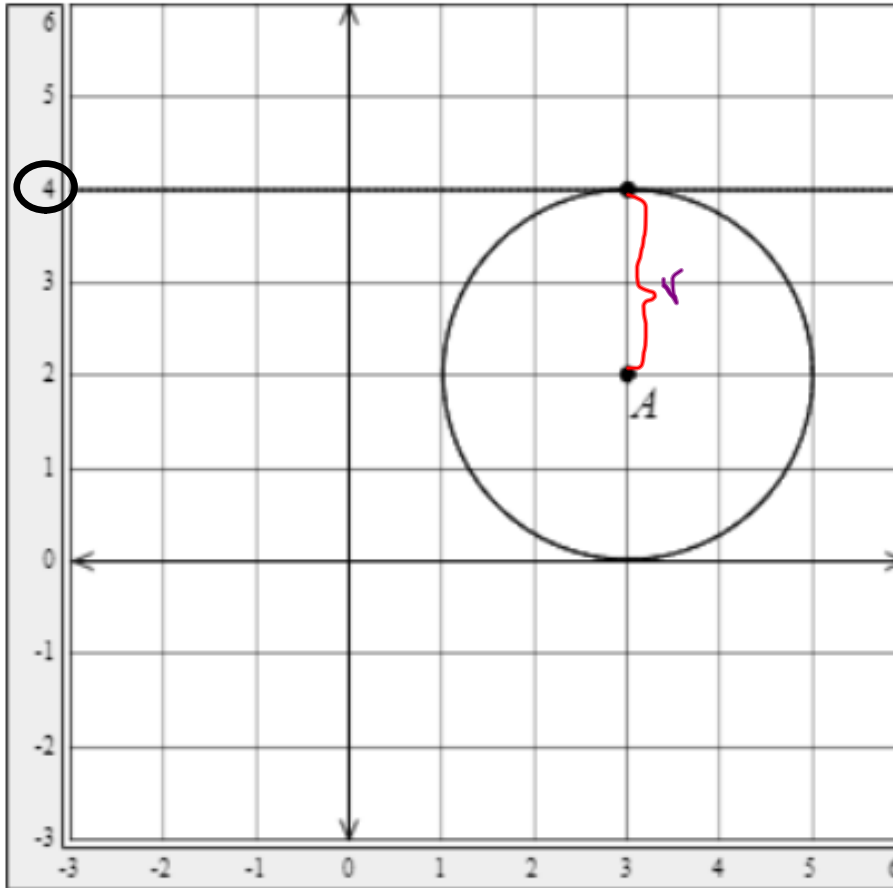
Inscribed Quadrilateral Theorem,

$$m\angle M + m\angle K = 180°$$

$$m\angle K = 180° - 99° = 81°$$

Inscribed Quadrilateral Theorem,

$$m\angle J + m\angle L = 180°$$

$$m\angle L = 180° - 107° = 73°$$

7 Find the length of the radius. Identify the point of tangency, and enter the equation of the tangent line at that point.
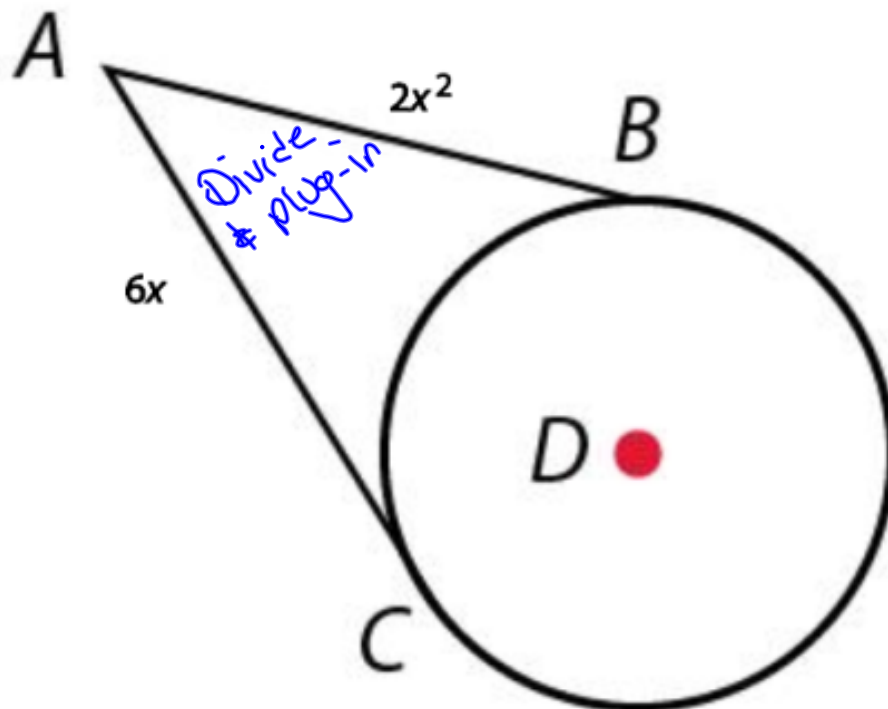
In the xy–plane, Horizontal lines are of the form $y = b$, for some real number b.

The radius of the circle is 2 units, and the point of tangency is (3, 4)

The equation of a horizontal line through this point is $y=4$.

8   The segments in each figure are tangent to the circle at the points shown. Find each length.

A

2x²

B

Divide - & plug-in

6x

D ●

C

$x = \frac{6}{2} = 3$

$6(3) = 18$
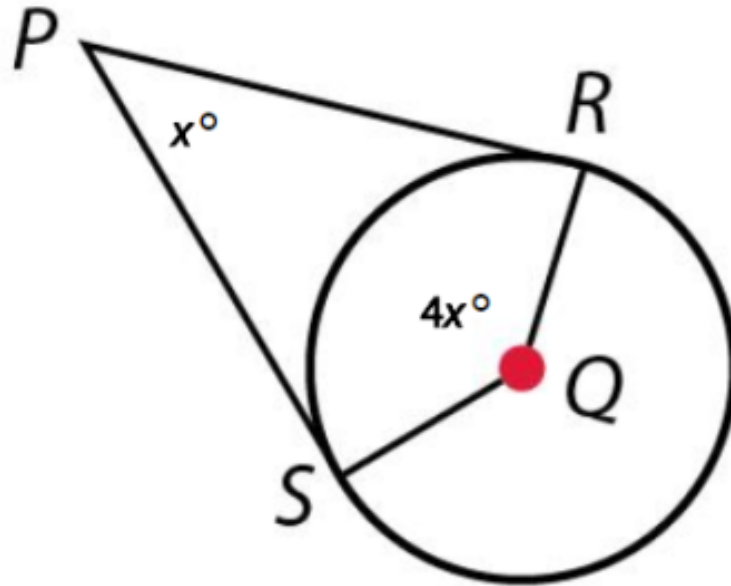
AC = 18

AB = 18

Two tangent segments from the same exterior point to the same circle will be congruent. Your answers should match.

9   $\overline{PR}$ is tangent to circle Q at R and $\overline{PS}$ is tangent to circle Q at S. Find m$\angle P$.
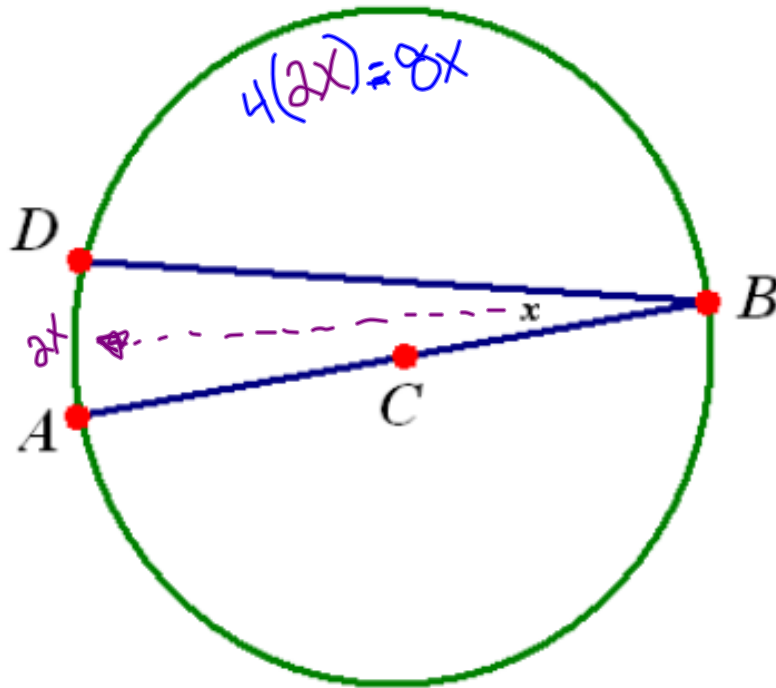
P

$x°$

R

$4x°$

Q

S

$$x + 4x = 180$$
$$5x = 180$$
$$x = 36$$

m$\angle P =$ 36 °

10

An inscribed angle with a diameter as a side has measure $x°$. If the ratio of $m\overarc{AD}$ to $m\overarc{DB}$ is 1:4, what is $m\overarc{DB}$? (Round to the nearest tenth if necessary.)

$m\overarc{AD}$ is $2x$.

$m\overarc{AD}$ to $m\overarc{DB}$ is 1:4, then $m\overarc{DB}$ is $8x°$.

$4(2x) = 8x$

$2x$

x

$$2x + 8x = 180°$$
$$10x = 180°$$
$$x = 18°$$

$$m\overarc{DB} = 8x° = 8 \times 18° = 144°$$

$m\overarc{DB}$ is $\boxed{144}$°.

The Inscribed Angle Theorem states that the measure of an inscribed angle is equal to half the measure of its intercepted arc.

11   Find the measure of each angle of inscribed quadrilateral TUVW.

$(12z + 23)°$

U

$(125 - z)°$

T

V

W
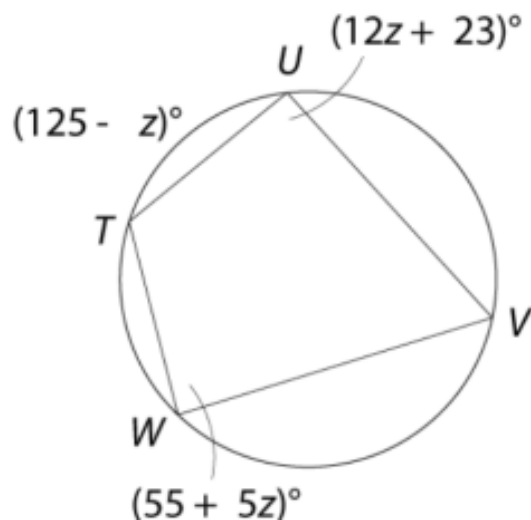
$(55 + 5z)°$

Find the value of z.

$$m\angle U + m\angle W = 180°$$
$$(12z + 23) + (55 + 5z) = 180$$
$$17z + 78 = 180$$
$$17z = 102$$
$$z = 6$$

Find the measure of each angle.

$$m\angle T = 125 - z = 125 - 6 = 119°$$
$$m\angle U = (12z + 23) = 12(6) + 23 = 95°$$
$$m\angle W = (55 + 5z) = 55 + 5(6) = 85°$$
$$m\angle V + m\angle T = 180°$$
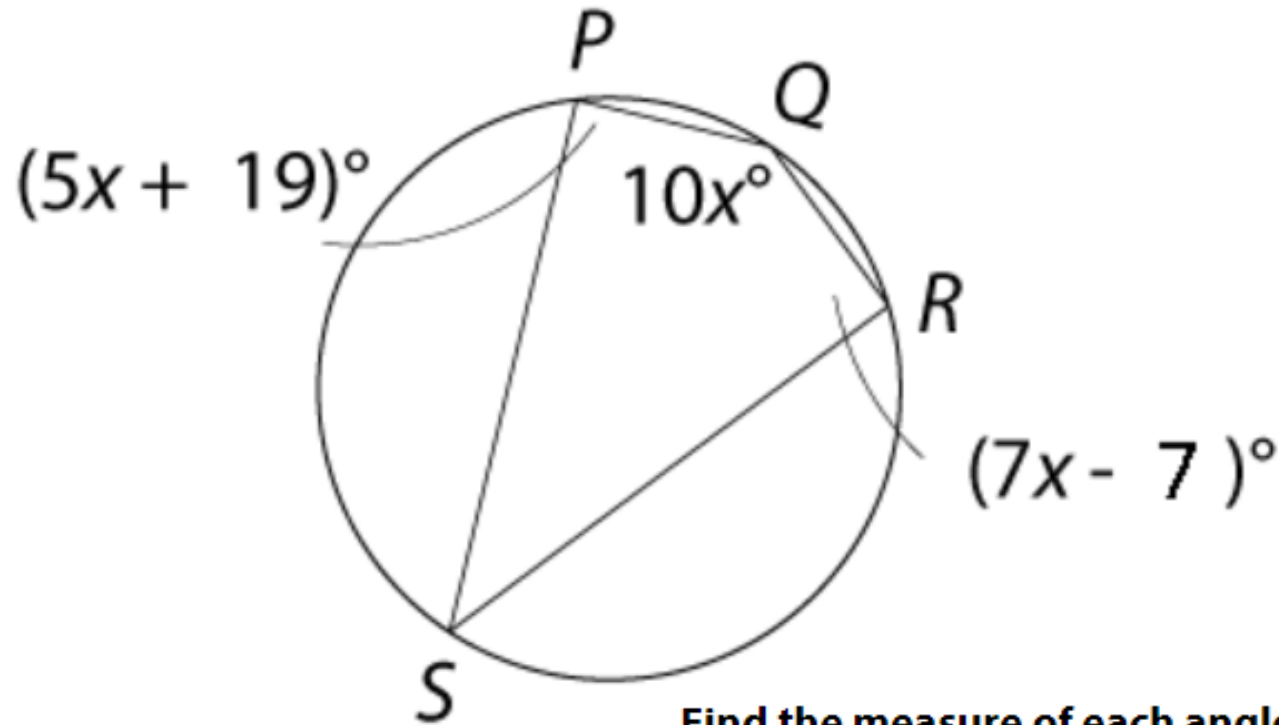$$m\angle V + 119° = 180°$$
$$m\angle V = 61°$$

So, $m\angle T = 119°$,
  $m\angle U = 95°$,
  $m\angle V = 61°$,
  $m\angle W = 85°$.

15

12 Find the angle measures of each inscribed quadrilateral.

Find the value of x.

$$m\angle P + m\angle R = 180°$$

$$(5x + 19) + (7x - 7) = 180$$

$$12x + 12 = 180$$

$$12x = 168$$

$$x = 14$$

Find the measure of each angle.

$$m\angle P = (5x + 19) = 5(14) + 19 = 89°$$

$$m\angle R = (7x - 7) = 7(14) - 7 = 91°$$

$$m\angle Q = 10x = 10(14) = 140°$$

$$m\angle S + m\angle Q = 180°$$

$$m\angle S + 140° = 180°$$

$$m\angle S = 40°$$

So, $m\angle P = 89°$,

$m\angle Q = 140°$,

$m\angle R = 91°$,

$m\angle S = 40°$.

13 Find the angle measures of each inscribed quadrilateral.
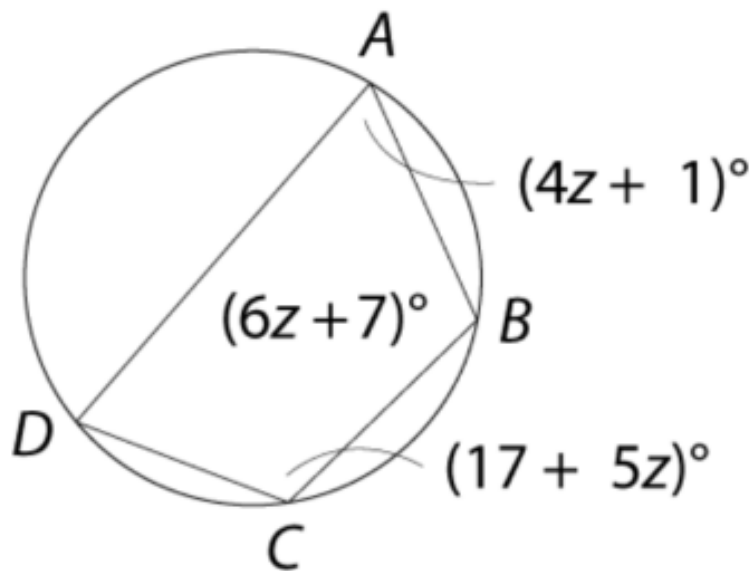
A

$(4z + 1)°$

$(6z + 7)°$ B

$(17 + 5z)°$

D

C

Find the value of z.

$$m\angle A + m\angle C = 180°$$
$$(4z + 1) + (17 + 5z) = 180$$
$$9z + 18 = 180$$
$$9z = 162$$
$$z = 18$$

Find the measure of each angle.

$$m\angle A = (4z + 1) = 4(18) + 1 = 73°$$
$$m\angle C = (17 + 5z) = 17 + 5(18) = 107°$$
$$m\angle B = 6z + 7 = 6(18) + 7 = 115°$$
$$m\angle D + m\angle B = 180°$$
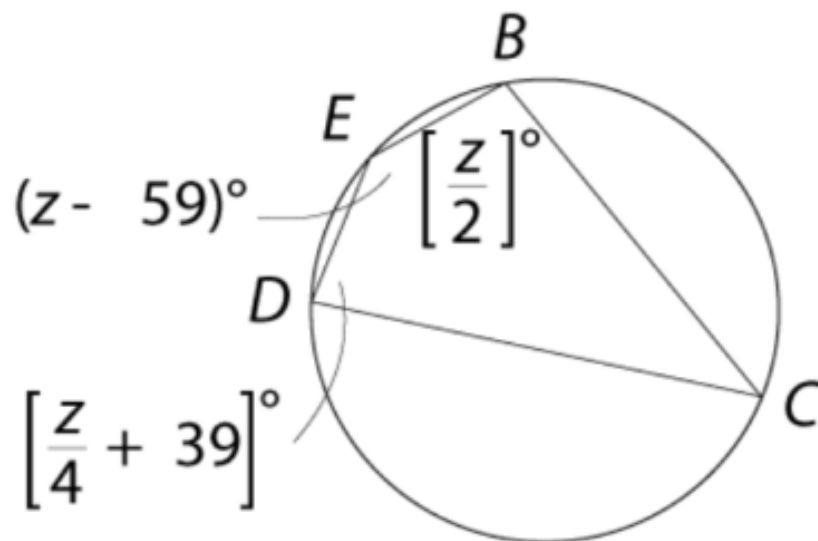$$m\angle D + 115° = 180°$$
$$m\angle D = 65°$$

So, $m\angle A = 73°$,

$m\angle B = 115°$,

$m\angle C = 107°$,

$m\angle D = 65°$.

14 | Find the angle measures of each inscribed quadrilateral.

E

$(z - 59)°$

$\left[\dfrac{z}{2}\right]°$

D

$\left[\dfrac{z}{4} + 39\right]°$

B

C

Find the value of z.

$$m\angle D + m\angle B = 180°$$

$$\left(\dfrac{z}{4} + 39\right) + \dfrac{z}{2} = 180$$

$$\dfrac{3z}{4} = 141$$

$$z = 188$$

Find the measure of each angle.

$$m\angle B = \dfrac{z}{2} = 94°$$

$$m\angle D = \left(\dfrac{z}{4} + 39\right) = 86°$$

$$m\angle E = z - 59 = 129°$$

$$m\angle C + m\angle E = 180°$$

$$m\angle C + 129° = 180°$$

$$m\angle C = 51°$$

So, $m\angle B = 94°$,
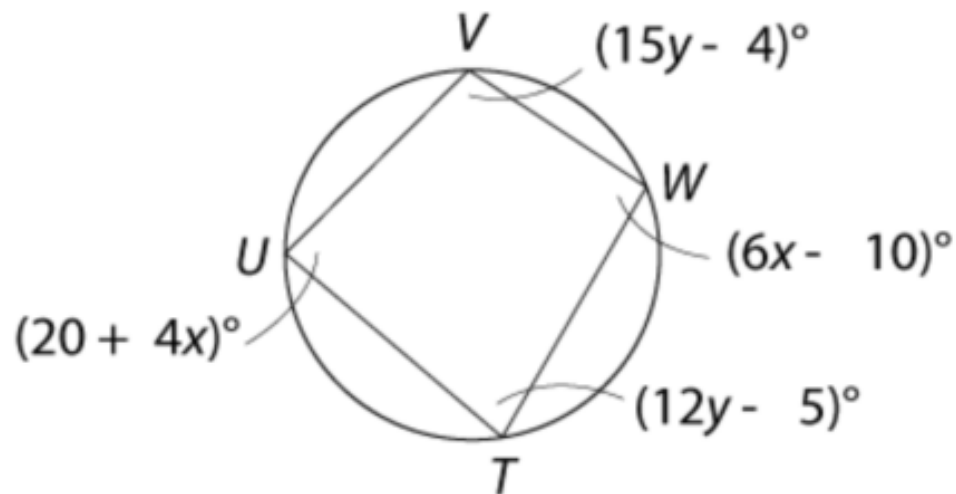
$m\angle C = 51°$,

$m\angle D = 86°$,

$m\angle E = 129°$.

15 Find the angle measures of each inscribed quadrilateral.

Find the value of y.

$$m\angle T + m\angle V = 180°$$
$$(15y - 4) + (12y - 5) = 180$$
$$27y - 9 = 180$$
$$27y = 189$$
$$y = 7$$
$$m\angle V = (15y - 4) = 15(7) - 4 = 101°$$
$$m\angle T = (12y - 5) = 12(7) - 5 = 79°$$

Find the value of x.

$$m\angle U + m\angle W = 180°$$
$$(20 + 4x) + (6x - 10) = 180$$
$$10x + 10 = 180$$
$$x = 17$$
$$m\angle U = 20 + 4x = 20 + 4(17) = 88°$$
$$m\angle W = 6x - 10 = 6(17) - 10 = 92°$$

So, $m\angle T = 79°$,
$m\angle U = 88°$,
$m\angle V = 101°$,
$m\angle W = 92°$.

MATHEMATICS
is not about
numbers, equations,
computations, or
algorithms:
it is about
UNDERSTANDING.

William Paul Thurston