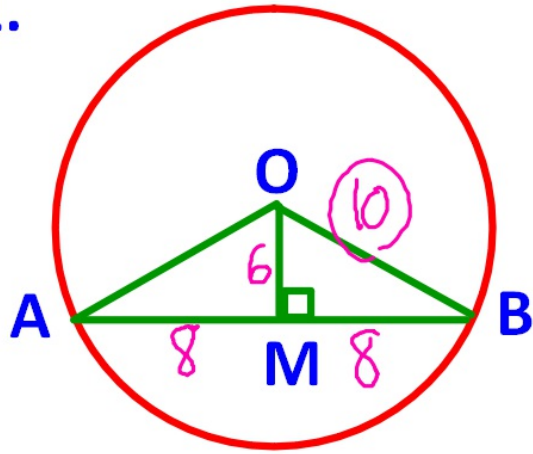


WARMUP #5

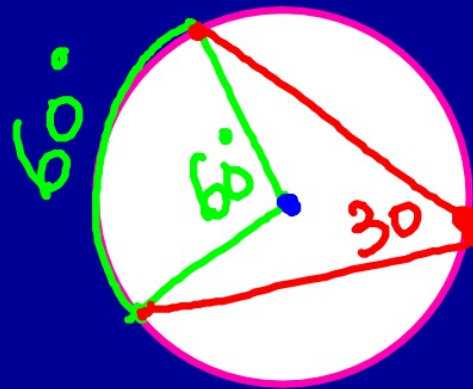
1.



$AB=16$
 $OM=6$
radius=?

$$6 : 8 : 10$$

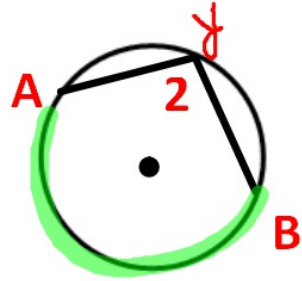
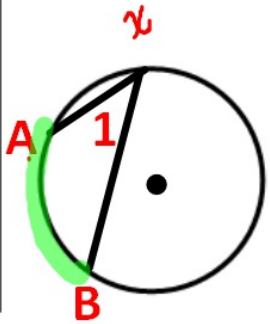
SECTION 9.5: INSCRIBED ANGLES



Standards:

7.0 - Students prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.

INSCRIBED ANGLE



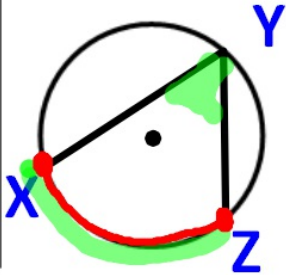
An angle whose vertex is on a circle and whose sides contain chords of the circle.

Angle 1 and angle 2

Intercept \widehat{AB}

THEOREM

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

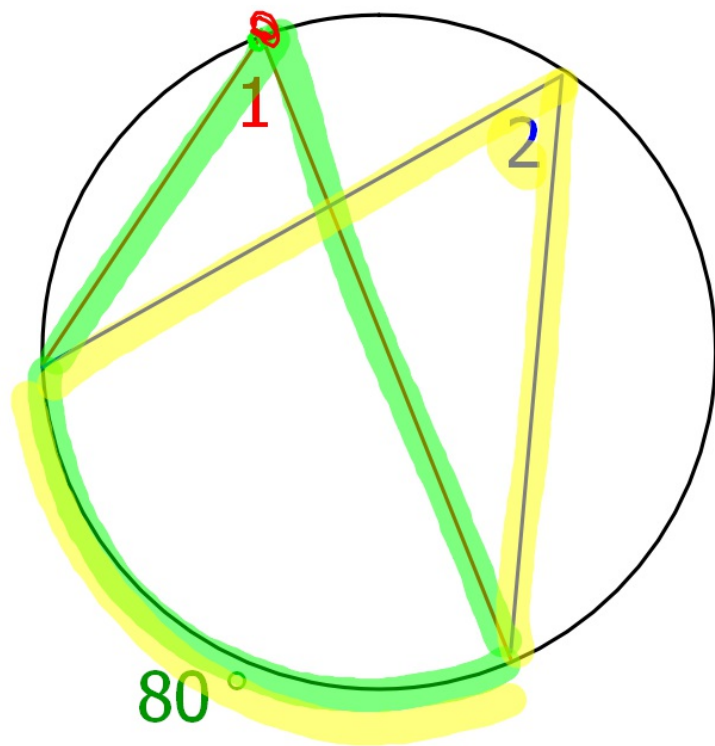


$$m\angle XYZ = \frac{1}{2}m(\widehat{XZ})$$

$$m(\widehat{XZ}) = 2m\angle XYZ$$

$$\angle = \frac{1}{2} \text{ arc}$$

$$2\angle = \text{ arc}$$



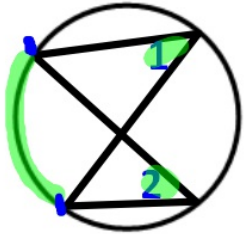
$$m\angle 1 = \underline{40}$$

$$m\angle 2 = \underline{40}$$

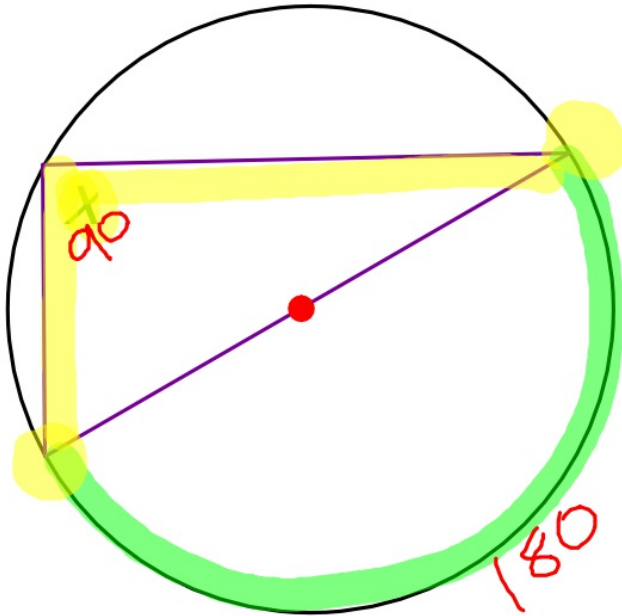
Name that theorem.....

COROLLARY

**If 2 inscribed angles intercept the same arc,
then the angles are \cong**



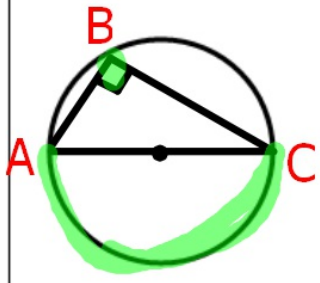
Find x .



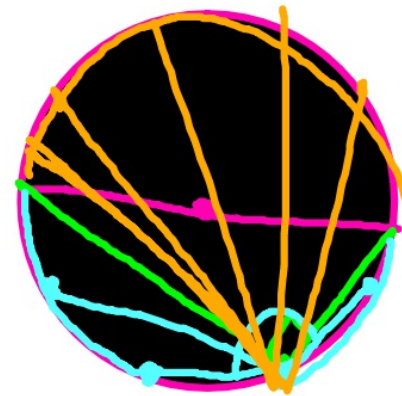
Name that theorem.....

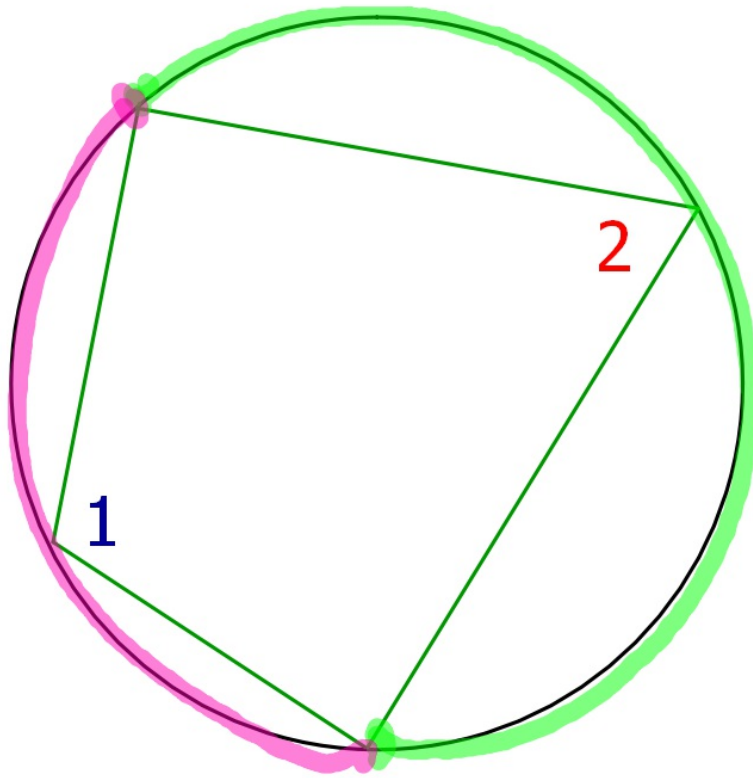
COROLLARY

An angle inscribed in a semicircle is a right angle



\widehat{ABC} is a semicircle so $\angle ABC$ is a rt \angle





$$\angle \text{Arc} + \angle \text{Arc} = 360$$

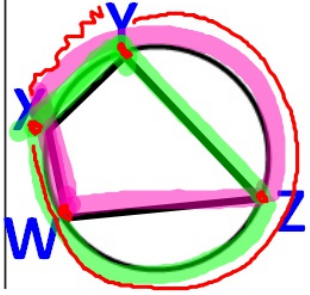
$$\underline{\underline{\angle 1 + \angle 2 = 180}}$$

Supplementary

Name that theorem.....

COROLLARY

If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.

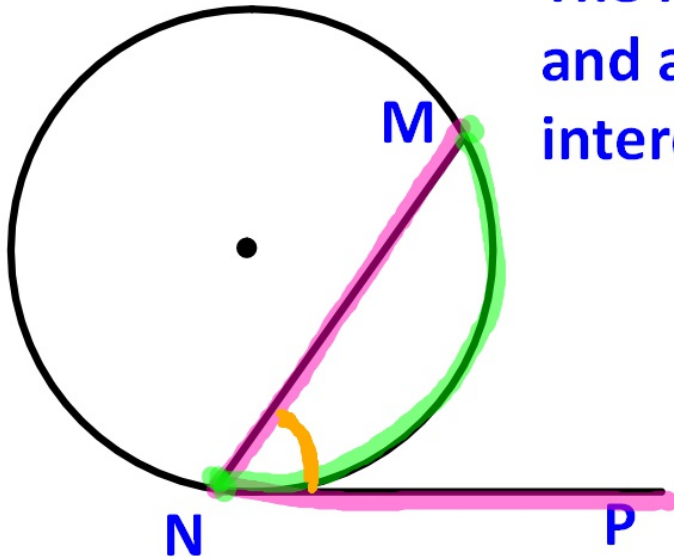


$\angle W$ and $\angle Y$ are supplementary.

$\angle X$ and $\angle Z$ are supplementary

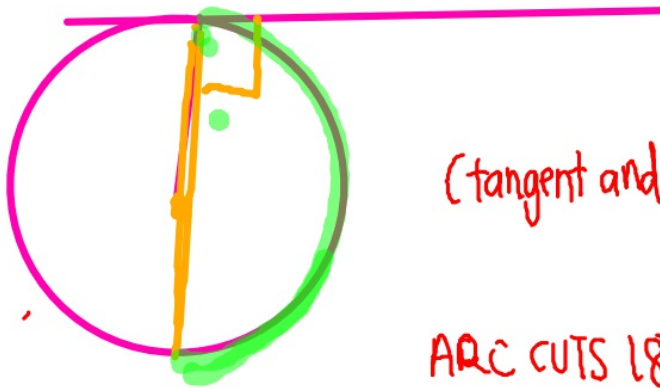
THEOREM

The measure of an angle formed by a chord and a tangent = $\frac{1}{2}$ the measure of its intercepted arc.



$$m\angle MNP = \frac{1}{2}m(\widehat{MN})$$

$$m(\widehat{MN}) = 2m\angle MNP$$



(tangent and Radius (diameter)) \perp

ARC CUTS 180°
So $\angle = 90^\circ$

Find the values of x , y , and z . In Exercises 7 and the circle.

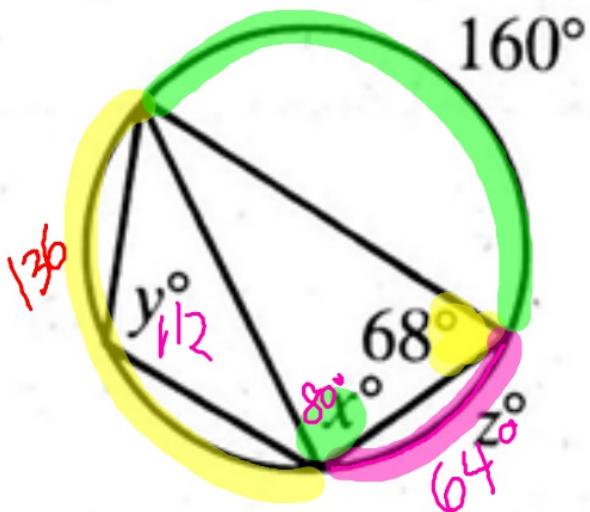
6.



$$x = 80$$

$$y = 112$$

$$z = 64$$



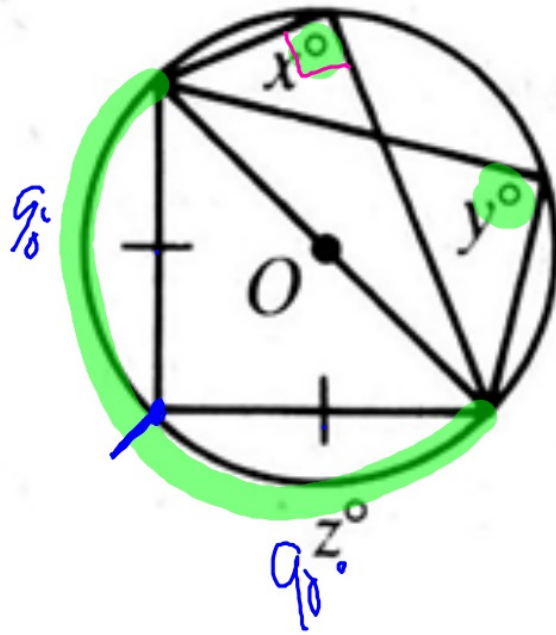
$$2 \cdot 68 = 136$$

$$z = \frac{360 - 296}{160 + 136} = 64$$

$$y = \frac{160 + 64}{2} = 112$$

$$\frac{224}{2} = 112$$

7.

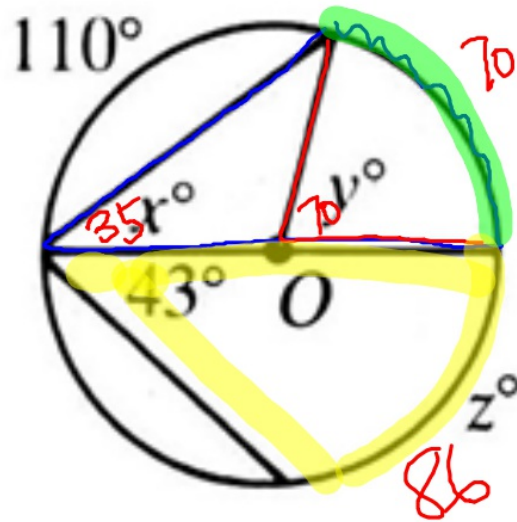


$$x = 90$$
$$y = 90$$



$$x = y = 90$$
$$z = 90$$

8.

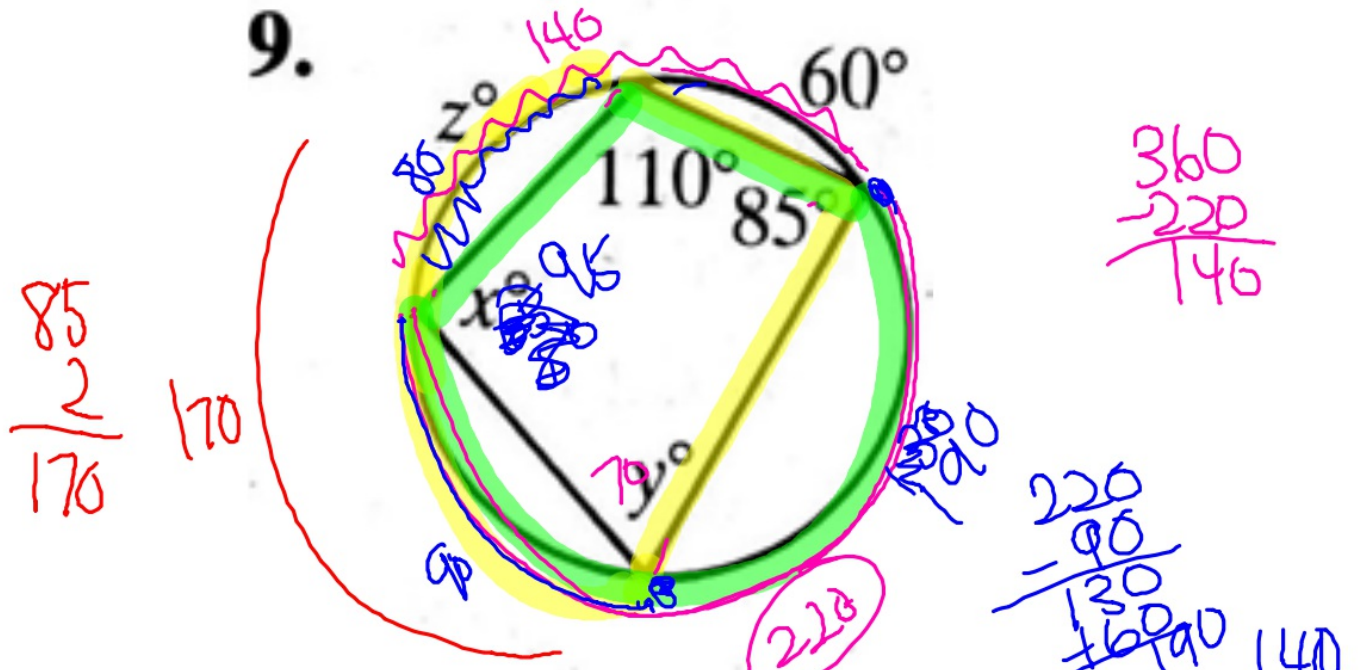


$$x = 35$$

$$y = 70$$

$$z = 86$$

9.



$x = 95$

$y = 70$

z

$z = 80$

$110 \times 2 = 220$

$220 - 90 = 130$
 $130 + 60 = 190$
 $z = 80$

$140 - 60 = 80$

$360 - 220 = 146$

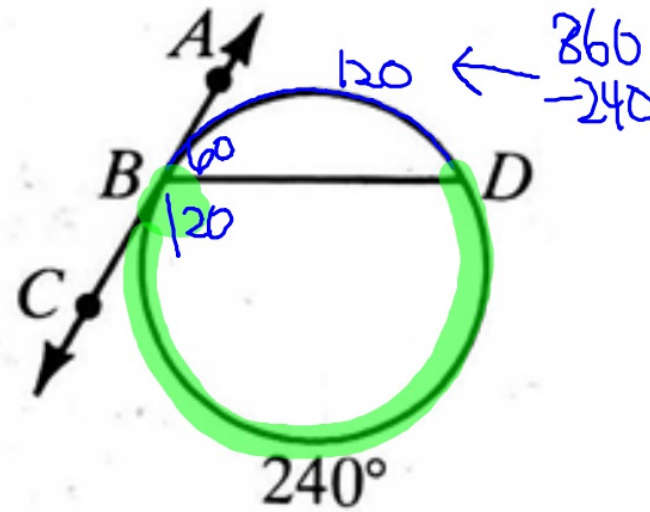
$85 \times 2 = 170$

Complete.

✦ 10. $m\angle CBD = \underline{\quad? \quad} 120$

✦ 11. $m\widehat{BD} = \underline{\quad? \quad} 120$

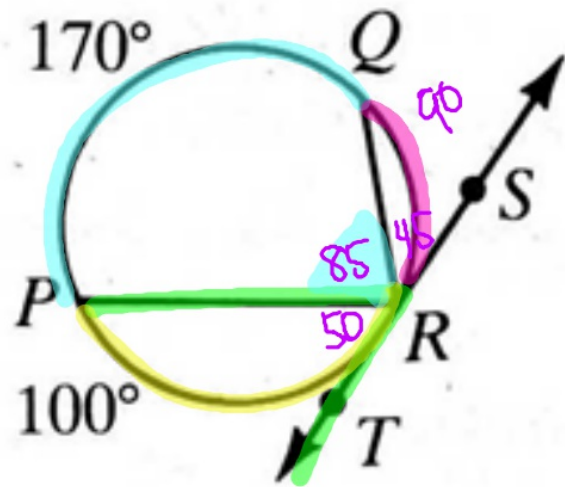
✦ 12. $m\angle ABD = \underline{\quad? \quad} 60$



✦ 13. $m\angle PRT = \underline{\quad ? \quad} 50$

✦ 14. $m\angle PRQ = \underline{\quad ? \quad} 85$

✦ 15. $m\angle QRS = \underline{\quad ? \quad} 45$



\overleftrightarrow{AC} is tangent to $\odot Z$ at B . \overline{BE} is a diameter and $m\angle DBC = 75$.

★ 16. $m\widehat{DE} = \underline{30}$

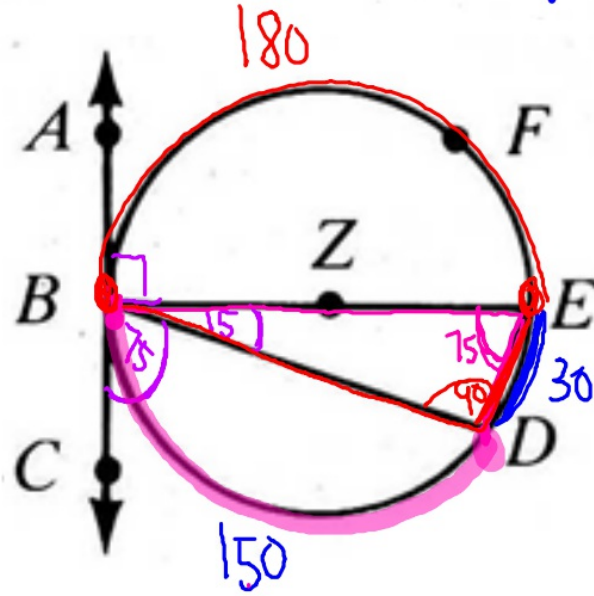
★ 18. $m\widehat{DB} = \underline{150}$

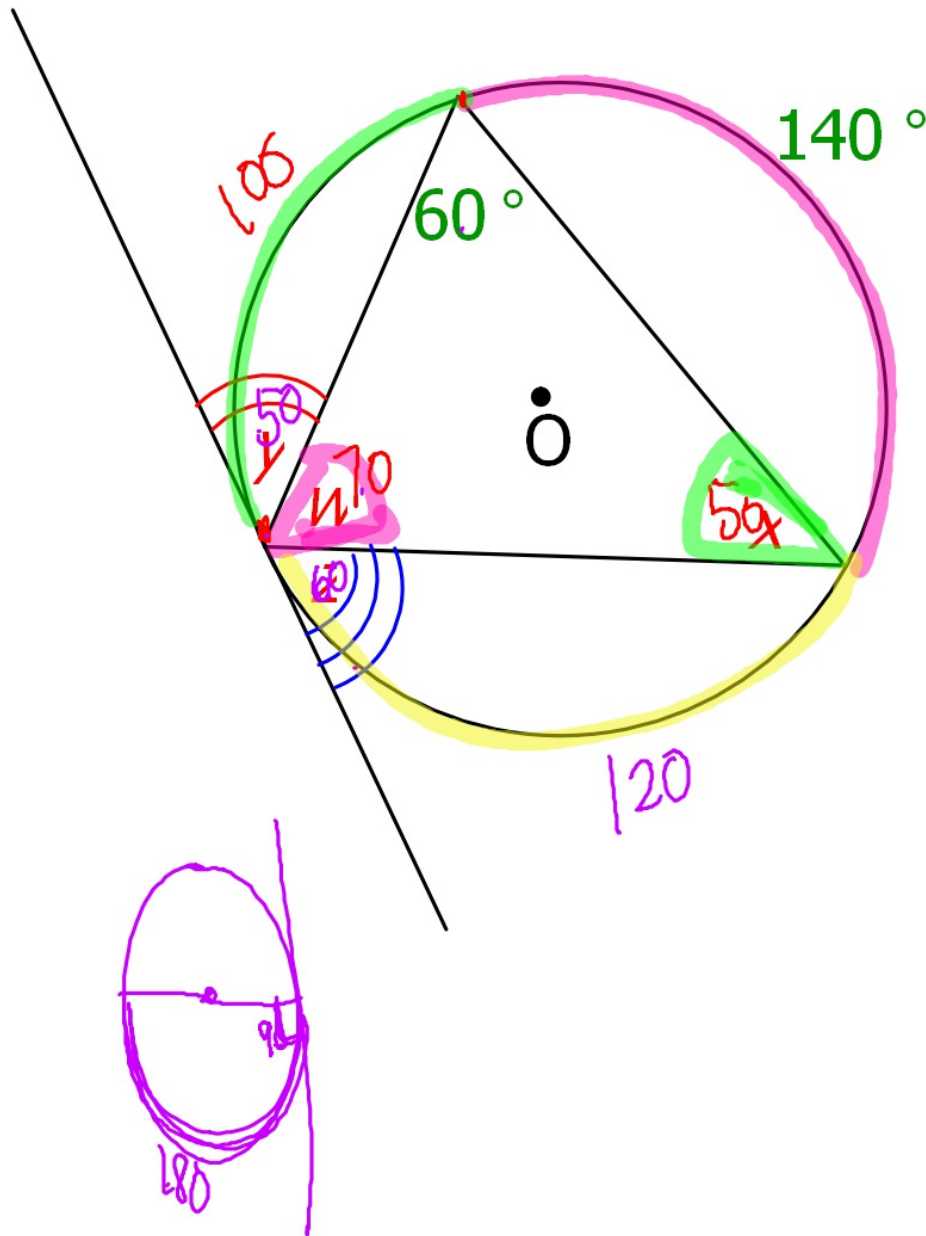
★ 20. $m\angle BDE = \underline{90}$

★ 17. $m\angle EBD = \underline{15}$

★ 19. $m\angle DEB = \underline{75}$

★ 21. $m\widehat{BFE} = \underline{?180}$





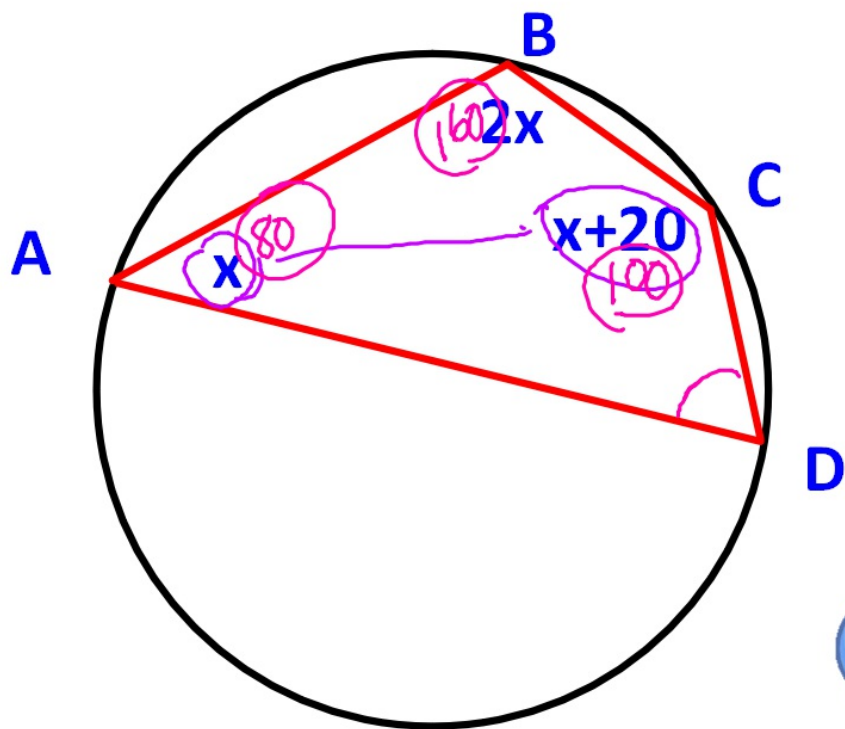
$$w = \underline{\cdot 70}$$

$$x = \underline{180 - (60 + 70)} = 50$$

$$y = \underline{\frac{360 - (140 + 120)}{2}} = 50$$

$$z = \underline{120 / 2} = 60$$

19.



Find x and $m\angle D$

$\rightarrow x + (x+20) = 180$
 $2x = 160$
 $x = 80$

$\rightarrow 2x = 160$
 $x + 20 = 100$

$\rightarrow 360 - (80 + 160 + 100) = D$

$20 = D$



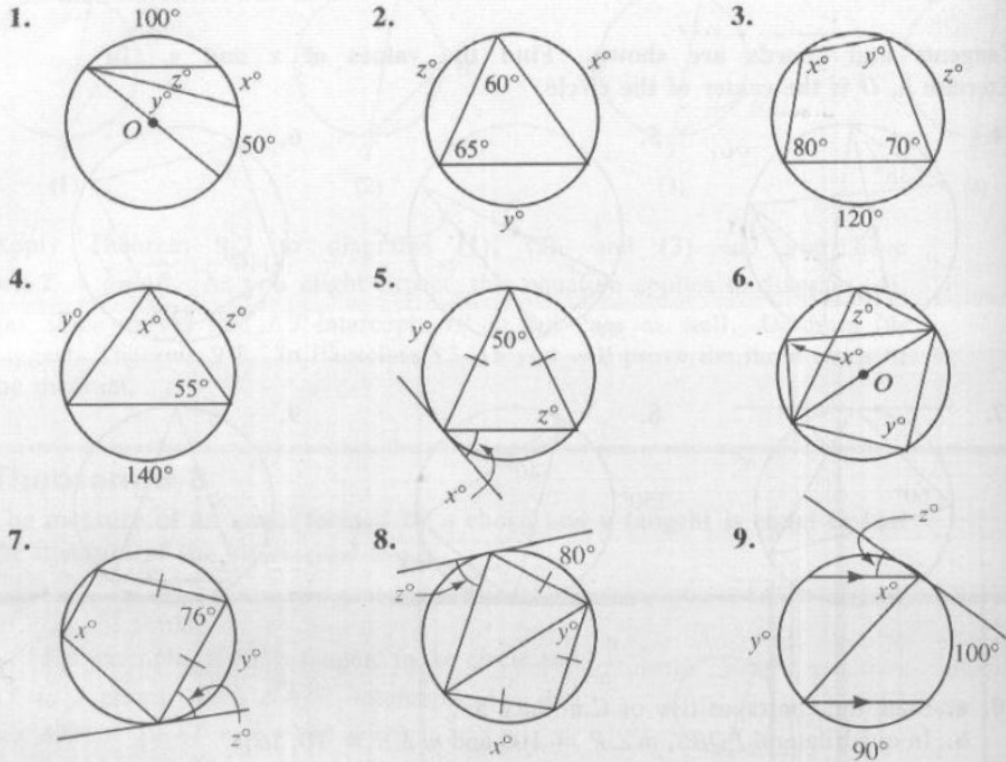
HOMWORK

HW 9.5

- Pg. 353 (CE): # 4-9
- Pg. 354 (WE): #1-9

Written Exercises

In the diagrams that follow, O is the center of the circle. In Exercises 1–9 find the values of x , y , and z .

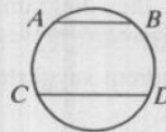


10. Prove: If two chords of a circle are parallel, the two arcs between the chords are congruent.

Given: $\overline{AB} \parallel \overline{CD}$

Prove: $\widehat{AC} \cong \widehat{BD}$

(Hint: Draw an auxiliary line.)



Exercises 19–21 refer to a quadrilateral $ABCD$ inscribed in a circle.

19. $m\angle A = x$, $m\angle B = 2x$, and $m\angle C = x + 20$. Find x and $m\angle D$.

20. $m\angle A = x^2$, $m\angle B = 9x - 2$, and $m\angle C = 11x$. Find x and $m\angle D$.

21. $m\angle D = 75$, $m\widehat{AB} = x^2$, $m\widehat{BC} = 5x$, and $m\widehat{CD} = 6x$. Find x and $m\angle A$.

22. Parallelogram $ABCD$ is inscribed in $\odot O$. Find $m\angle A$.

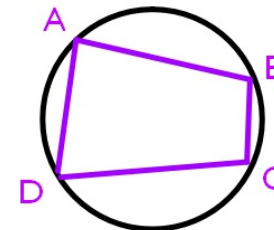
HW 9.5

■ Pg. 354

(WE):

#1-10, 12,

19-22



p353 CE 4-9 (EXTRA PRACTICE)

Tangents and chords are shown. Find the values of x and y . In Exercise 5, O is the center of the circle.

