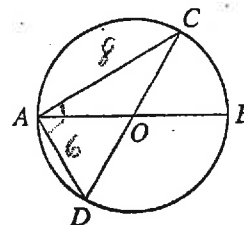


Homework – Arcs & Chords

#'s 1-5, 7-17 odd

SHOW ALL WORK ON A SEPARATE PIECE OF PAPER!

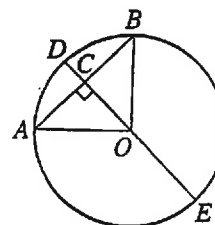
- Find the length of the radius of a circle whose diameter measures:
 - 10 inches
 - 12 meters
 - 9 feet
 - 2.3 centimeters
 - d
- Find the length of the diameter of a circle whose radius measures:
 - $\sqrt{3}$ yards
 - 12 meters
 - $\frac{1}{4}$ foot
 - 0.05 millimeter
 - r
- In the diagram, O is the center of the circle, and $A, B, C,$ and D are points of the circle. Name:
 - 4 radii
 - 2 diameters
 - 4 chords
 - 4 central angles
- In circle O , \overline{AB} is a diameter, $AO = 3x - 1$, and $AB = 5x$. Find the length of a radius of the circle.
- Points $A, C,$ and D are points of circle O such that $\angle DAC$ is a right angle, $DA = 6$, and $AC = 8$. Find:
 - the length of \overline{CD} , a diameter of the circle
 - OA



Ex. 3-5

In 6-19, \overline{DE} is a diameter of circle O , and $\overline{DE} \perp$ chord \overline{AB} at point C :

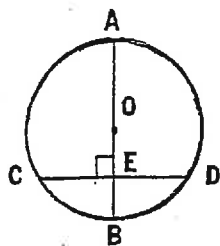
- If $AB = 6$ and $OC = 4$, find OB .
- If $AB = 14$ and $OC = 24$, find OB .
- If $AB = 30$ and $OB = 17$, find OC .
- If $AB = 32$ and $OB = 20$, find OC .
- If $OB = 13$ and $OC = 5$, find AB .
- If $OB = 15$ and $OC = 12$, find AB .
- If $m\angle AOB = 90$, find:
 - $m\widehat{AB}$
 - $m\widehat{AD}$
 - $m\widehat{AEB}$
 - $m\widehat{AE}$
- If $m\angle AOE = 140$, find:
 - $m\angle AOC$
 - $m\angle AOB$
 - $m\widehat{AB}$
 - $m\widehat{BD}$
 - $m\widehat{AEB}$
- If $m\angle AOB = 90$ and $OC = 3$, find AB .
- If $m\angle AOB = 90$ and $OA = \sqrt{8}$, find:
 - OB
 - AB
 - AC
 - OC



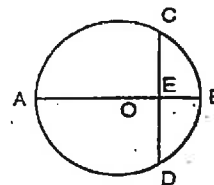
Ex. 6-19

16. In the accompanying figure, diameter \overline{AB} is perpendicular to chord \overline{CD} at E . If $CE = 8$, and $EB = 4$, find AE .

- (1) 10 (3) 16
 (2) 2 (4) 4



17. In the accompanying diagram of circle O , diameter \overline{AB} is perpendicular to chord \overline{CD} at E , $CD = 8$, and $EB = 2$. What is the length of the diameter of circle O ?



Name: _____

Date: _____

Geometry

Tangents and Secants HW

5-11 odd

In 5-11, \overline{PQ} is tangent to circle O at P , \overline{SQ} is tangent to circle O at S , and \overline{OQ} intersects circle O at T and R .

5. If $OP = 15$ and $PQ = 20$, find: a. OQ b. SQ c. TQ

6. If $OQ = 25$ and $PQ = 24$, find: a. OP b. RT c. RQ

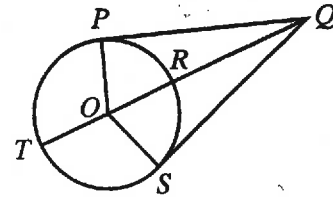
7. If $OP = 10$ and $OQ = 26$, find: a. PQ b. RQ c. TQ

8. If $OP = 6$ and $TQ = 13$, find: a. OQ b. PQ c. SQ

9. If $OS = 9$ and $RQ = 32$, find: a. OQ b. SQ c. PQ

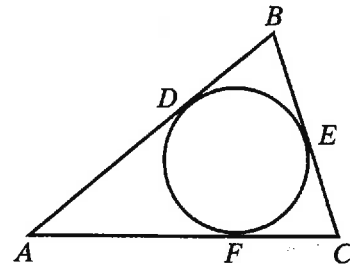
10. If $PQ = 3x$, $SQ = 5x - 8$, and $OS = x + 1$, find: a. PQ b. SQ c. OS d. OQ

11. If $SQ = 2x$, $OS = 2x + 2$, and $OQ = 3x + 1$, find: a. x b. SQ c. OS d. OQ



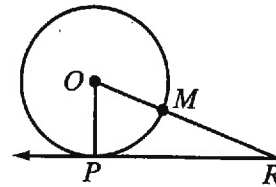
12. The sides of $\triangle ABC$ are tangent to a circle at D , E , and F . If $DB = 4$, $BC = 7$, and the perimeter of the triangle is 30, find:

- a. BE b. EC c. CF d. AF e. AC f. AB



13. Line \overleftrightarrow{RP} is tangent to circle O at P and \overline{OR} intersects the circle at M , the midpoint of \overline{OR} . If $RP = 3.00$ cm, find the length of the radius of the circle:

- a. in radical form b. to the nearest hundredth



Name: _____

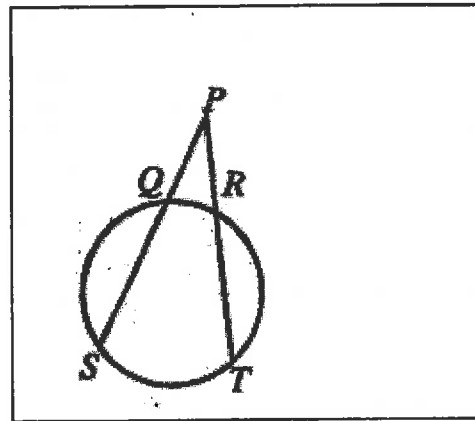
Date: _____

Geometry

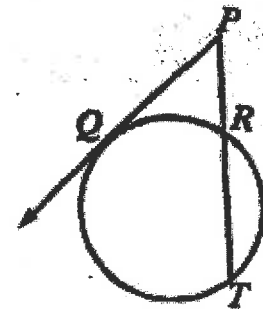
Angles Formed by Tangents and Secants

In 3-8, secants \overleftrightarrow{PQS} and \overleftrightarrow{PRT} intersect at P .

4. If $m\widehat{ST} = 100$ and $m\widehat{QR} = 40$, find $m\angle P$.



8. If $m\angle P = 25$ and $m\widehat{ST} = 110$, find $m\widehat{QR}$.

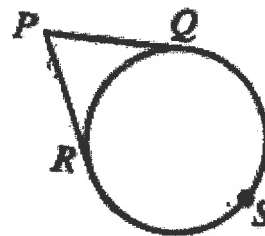


11. If $m\widehat{QR} = 70$ and $m\widehat{RT} = 120$, find $m\angle P$.

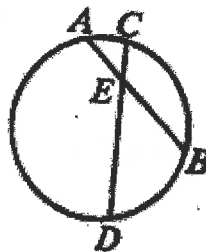
12. If $m\widehat{QR} = 50$ and $m\angle P = 40$, find $m\widehat{QT}$.

13. If $m\widehat{QR} = 50$ and $m\angle P = 40$, find $m\widehat{ST}$.

16. If $m\widehat{RQ} = 80$, find $m\angle P$.



20. If $m\angle P = 45$, find $m\widehat{RQ}$ and $m\widehat{RSQ}$.



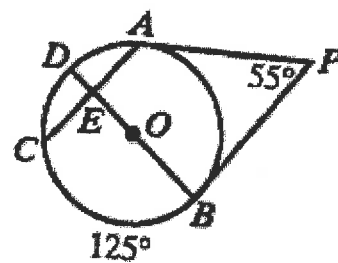
If $m\widehat{AC} = 20$ and $m\widehat{BD} = 60$, find $m\angle AED$.

DO, HIG MDA.

In the diagram, \vec{PA} and \vec{PB} are tangent to circle O at A and B . Diameter \overline{BD} and chord \overline{AC} intersect at E , $m\widehat{CB} = 125$ and $m\angle P = 55$. Find:

- a. $m\widehat{AB}$
- b. $m\widehat{AD}$
- c. $m\widehat{CD}$
- d. $m\angle DEC$
- e. $m\angle PBD$
- f. $m\angle PAC$

Show that \overline{BD} is perpendicular to \overline{AC} and bisects \overline{AC} .



Now That's A Big Circle!

1. In Circle O, $m\widehat{AE} = 80^\circ$, $m\widehat{DE} = 20^\circ$, and $m\widehat{BC} = 70^\circ$.
Find the measures of the following:

a) $m\widehat{AB}$

b) $m\widehat{DC}$

c) $m\angle DOE$

d) $m\angle ABE$

e) $m\angle AFB$

f) $m\angle AFE$

g) $m\angle BAC$

h) $m\angle AEB$

i) $m\angle CDG$

j) $m\angle ODH$

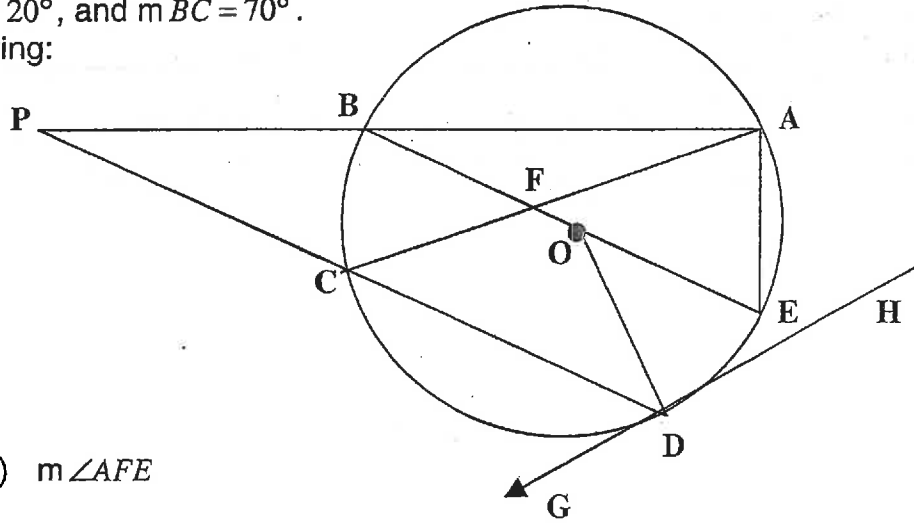
k) $m\angle BAE$

l) $m\angle CPA$

m) $m\angle ACD$

n) $m\angle CAE$

o) $m\angle ODC$



2. Given: Circle O with $m\angle BEF = 60^\circ$,
 $m\widehat{BE} = 110^\circ$, $m\widehat{GE} = 60^\circ$, $\angle BCG = 50^\circ$. Find:

a) $m\widehat{BDF}$

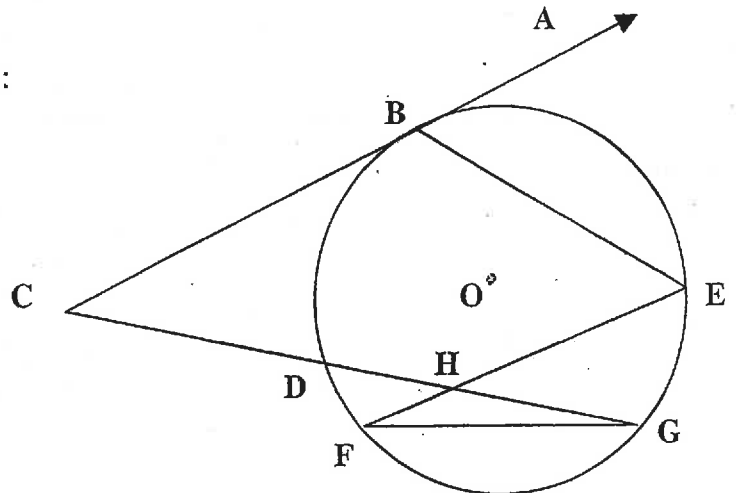
b) $m\widehat{FG}$

c) $m\widehat{BD}$

d) $m\angle DGF$

e) $m\angle CHE$

f) $m\angle ABE$



2. Given: Circle O with $m\angle BEF = 60^\circ$,
 $\widehat{BE} = 110^\circ$, $\widehat{GE} = 60^\circ$, $\angle BCG = 50^\circ$. Find:

a) $m\widehat{BDF}$

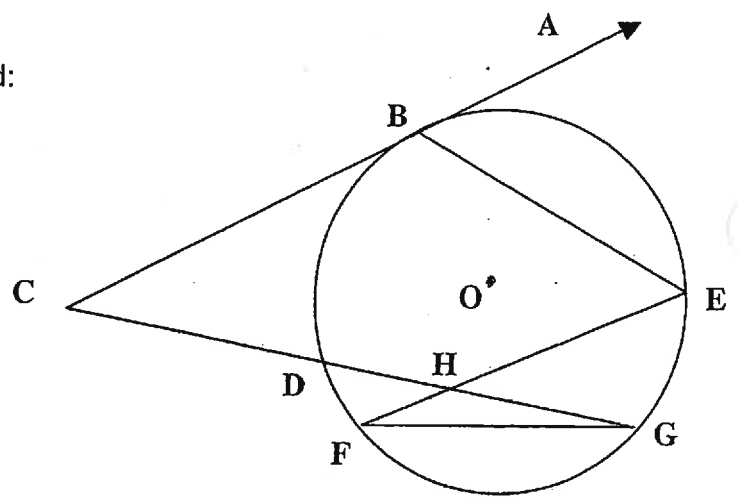
b) $m\widehat{FG}$

c) $m\widehat{BD}$

d) $m\angle DGF$

e) $m\angle CHE$

f) $m\angle ABE$

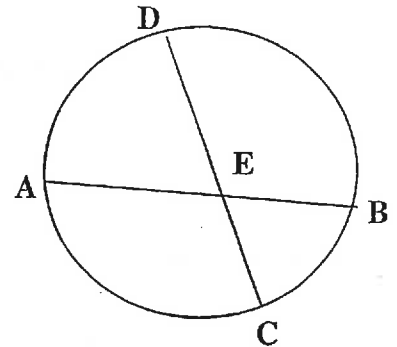


Measure of Chords, Tangent Segments, and Secant Segments

Theorem: If two chords intersect within a circle, the product of the measures of the segments of one chord equals the product of the measures of the segments of the other.

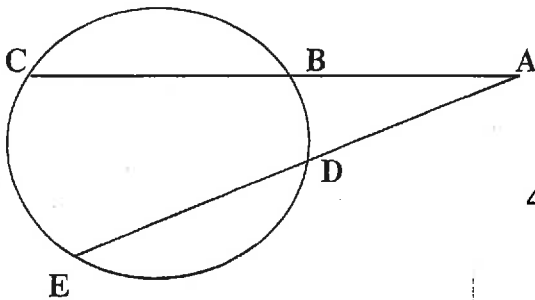
1. If $AE = 6$, $EB = 10$, and $ED = 12$, find EC .

2. If $CE = 4$, $ED = 12$, and EB is 2 more than AE , find AE and EB .



Theorem: If two secants intersect outside the circle, the product of the measures of one secant and its external segment equals the product of the measures of the other secant and its external segment.

3. If $CA = 12$, $BA = 4$, and $DA = 6$, find EA , ED , and CB .

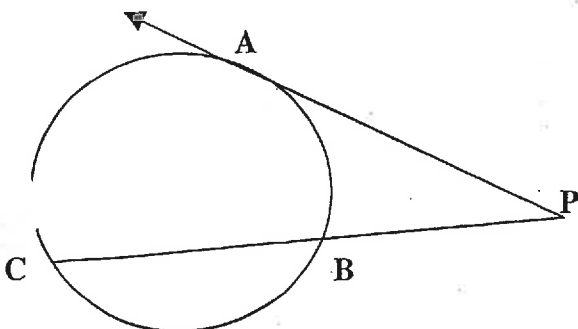


4. If $AB = 3$, $AC = 8$, and DE is 2 less than AD , find AE .

Theorem: If a tangent and a secant are drawn to a circle from an external point, then the square of the measure of the tangent is equal to the product of the measures of the secant and its external segment.

3. If $PB = 3$, $BC = 9$, find PA .

4. If $PB:BC = 1:3$, and $PA = 4$, find PB .

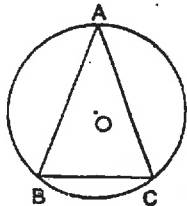


Name _____

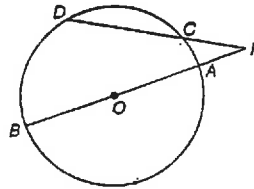
Geometry of Circles Review

1. In the accompanying diagram, isosceles triangle ABC is inscribed in circle O and $m\angle BAC = 40$. Find $m\widehat{AC}$.

Vertex x



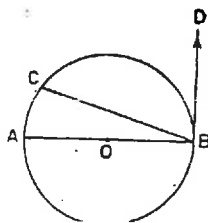
2. Secants \overline{PAB} and \overline{PCD} are drawn to circle O. If $PC = 5$, $CD = 7$, and $PA = 4$, find the length of a radius of circle O.



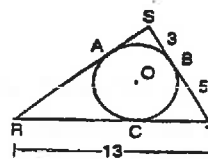
3. \overline{PA} and \overline{PB} are tangents drawn to circle O from external point P. If $PA = 8x - 7$ and $PB = 4x + 13$, find the measure of PA.

4. Two tangents are drawn to circle O from an external point P. If the major arc has a measure of 200° , find the measure of $\angle P$.

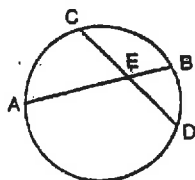
5. In the accompanying diagram, \overline{BD} is a tangent to circle O at B, \overline{BC} is a chord, and \overline{BOA} is a diameter. If $m\widehat{AC} : m\widehat{CB} = 1:4$, find $m\angle DBC$.



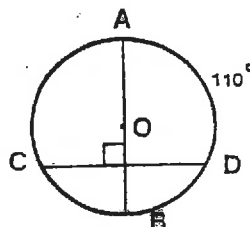
6. Segments \overline{RS} , \overline{ST} , and \overline{TR} are tangent to circle O at A, B, and C respectively. If $SB = 3$, $BT = 5$, and $TR = 13$, what is the measure of \widehat{RS} ?



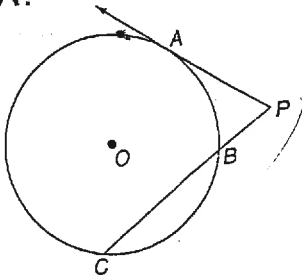
7. Chords AB and CD intersect at E. If $m\widehat{AC} = 75$ and $m\widehat{DB} = 45$, find $\angle AED$.



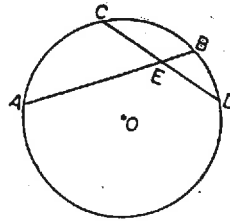
8. In circle O, diameter $\overline{AB} \perp \overline{CD}$. If $m\widehat{AD} = 110^\circ$, find the $m\widehat{BC}$.



9. \overline{PA} is tangent to circle O at point A. If $\overline{CB} = 12$ and $PB = 4$, what is the length of \overline{PA} ?



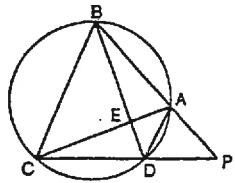
10. Chords \overline{AB} and \overline{CD} of circle O intersect at point E. If $AE = x$, $EB = x-6$, and $CE = ED = 4$, find AE.



11. Quadrilateral ABCD is inscribed in the circle, diagonals \overline{AC} and \overline{BD} intersect at point E, sides \overline{BA} and \overline{CD} are extended to point P, $m\widehat{AD} : m\widehat{DC} = 1 : 2$, $m\widehat{ABC} = 234$, and $m\widehat{BC}$ is 54 less than twice $m\widehat{AB}$.

Find:

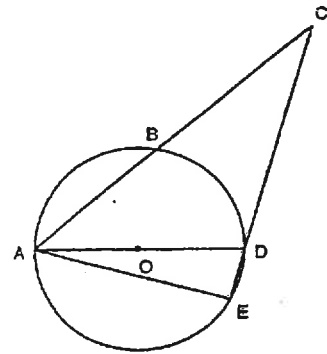
- $m\widehat{AB}$
- $m\angle ABD$
- $m\angle BPC$
- $m\angle AEB$
- $m\angle ADP$



12. In circle O, diameter \overline{AD} , chord \overline{AE} , and secants \overline{CBA} and \overline{CDE} are drawn; $m\angle BAD = 40^\circ$; and $m\widehat{AE} = 5(m\widehat{ED})$.

Find:

- $m\widehat{BD}$
- $m\widehat{AE}$
- $m\angle ACE$
- $m\angle AED$
- $m\angle ADC$



13. In circle O, \overline{AE} and \overline{FD} are chords, \overline{AOBG} is a diameter and is extended to C. \overline{CDE} is a secant, $\overline{AE} \parallel \overline{FD}$, and $m\widehat{AE} : m\widehat{ED} : m\widehat{DG} = 5 : 3 : 1$.

Find:

- $m\widehat{DG}$
- $m\angle AEF$
- $m\angle DBG$
- $m\angle DCA$
- $m\angle CDF$

