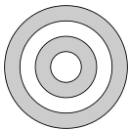
Name: _____ Date: _____

Period: ____ Mr. Valentino

Unit 12 Review Sheet



Test Topics

- Equation of a circle
- Circle Vocabulary
- Angles and Arcs of the circle
  - Central, Inscribed, Tangent-Chord, Intersecting Chords, Tangent-Tangent, Tangent-Secant, Secant-Secant, inscribed quadrilaterals
- Chord Length
- Tangent/Secant Length
- Super Circles

Equation of a Circle

1. Find the center and radius of the circle.

   $(x-3)^2 + (y+5)^2 = 9$

   [A] $(3, -5)$; 3 [B] $(-3, 5)$; 3 [C] $(-5, 3)$; 9 [D] $(-5, -3)$; 3

2. Find the center and radius of $x^2 + y^2 - 8x + 2y + 8 = 0$.

   [A] center $(4, -1)$; $r = 3$ [B] center $(-4, 1)$; $r = 3$

   [C] center $(4, -1)$; $r = 9$ [D] center $(-4, 1)$; $r = 9$

3. What is an equation of the circle with center $(-5,4)$ and a radius of 7?

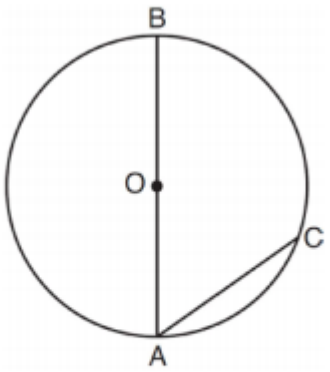
   1) $(x-5)^2 + (y+4)^2 = 14$
   2) $(x-5)^2 + (y+4)^2 = 49$
   3) $(x+5)^2 + (y-4)^2 = 14$
   4) $(x+5)^2 + (y-4)^2 = 49$

4. Find the center and radius of $x^2 + y^2 + 8x - 10y + 37 = 0$.

5. What is the equation of the circle passing through the point (6, 5) and centered at (3, −4)?

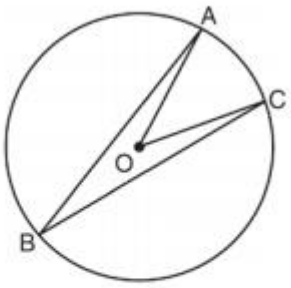
Angles and Arcs of a Circle

1. As shown in the diagram below, $\overline{AB}$ is a diameter of circle O, and chord $\overline{AC}$ is drawn.



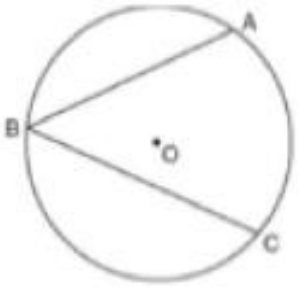
If $m\angle BAC = 70$, then $m\overset{\frown}{AC}$ is
1) 40
2) 70
3) 110

2. In the diagram below of circle O, $m\angle ABC = 24$.

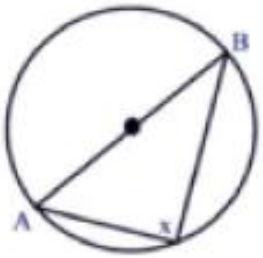


What is the $m\angle AOC$?
1) 12
2) 24
3) 48
4) 60

3. In the accompanying diagram of circle O, $m<ABC = 2x$ and $m\overset{\frown}{AC} = x + 60$. Find the value of x.
[1] 20 [2] 40 [3] 60 [4] 80

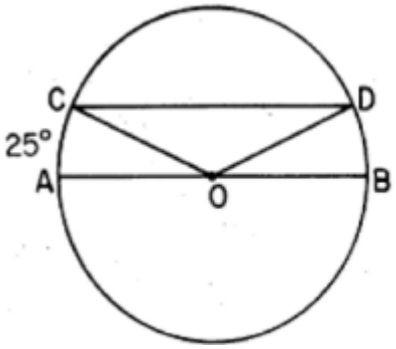


4. Given the circle at the right with diameter $\overline{AB}$, find x.
[1] 30° [2] 45° [3] 60° [4] 90°



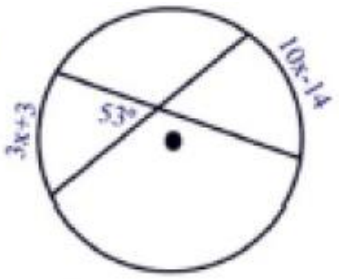
5. Given a circle with the center indicated. Find x.
[1] 100 [3] 50
[2] 80 [4] 40

6. In the accompanying diagram, chord $\overline{CD}$ is parallel to diameter $\overline{AB}$. If $m\overset{\frown}{AC} = 25$, what is $m\angle COD$?



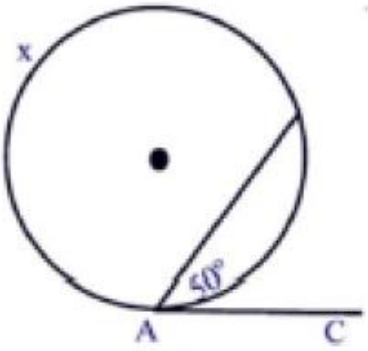
7. Two chords intersect within a circle to form an angle whose measure is 53°. If the intercepted arcs are represented by $3x + 3$ and $10x - 14$, find the measure of larger of these two arcs.

[1] 9 [2] 13 [3] 30 [4] 76



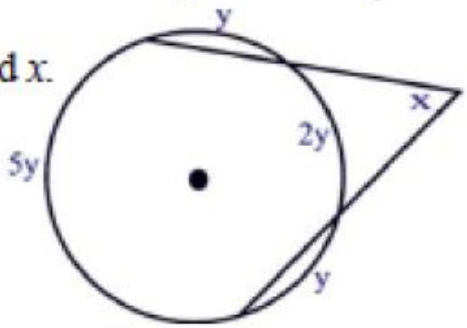
8. Given tangent $\overline{AC}$ to the circle shown at the right. Find the size of the arc designated by x.

[1] 25
[2] 50
[3] 100
[4] 260

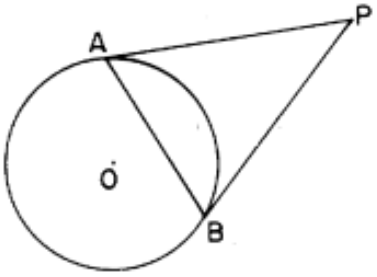


9. Given the two secants shown in the diagram at the right, find the number of degrees in the angle labeled x.

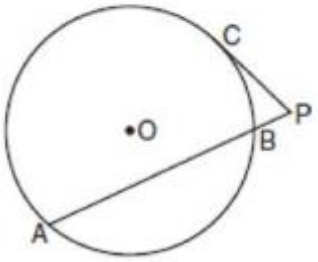
[1] 40°
[2] 60°
[3] 80°
[4] 140°



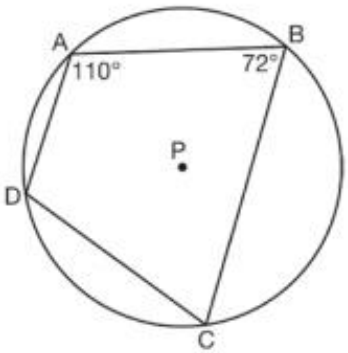
10. In the accompanying diagram, $\overline{PA}$ and $\overline{PB}$ are tangents drawn to circle O. If $m\angle PBA = 70$, find $m\angle P$.



11. In the accompanying diagram of circle O, $\overline{PC}$ is a tangent, $\overline{PBA}$ is a secant, $m\overset{\frown}{AB} = 132$, and $m\overset{\frown}{CB} = 46$. Find $m\angle P$.



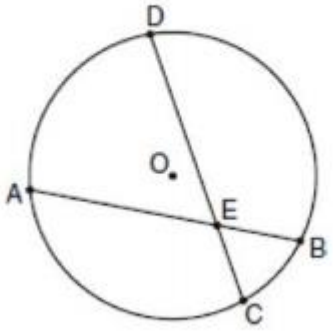
12. In the diagram below, quadrilateral $ABCD$ is inscribed in circle P.



What is $m\angle ADC$?

Chord Length

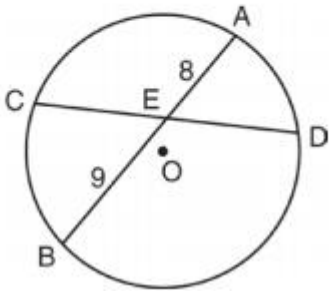
1. In the diagram of circle O below, chord $\overline{AB}$ intersects chord $\overline{CD}$ at E, $DE = 2x + 8$, $EC = 3$, $AE = 4x - 3$, and $EB = 4$.



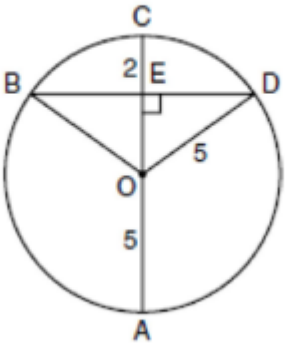
What is the value of x?

2. Chords $\overline{AB}$ and $\overline{CD}$ intersect at point E in a circle with center at O. If $AE = 8$, $AB = 20$, and $DE = 16$, what is the length of $\overline{CE}$?

3. In the diagram below of circle O, chord $\overline{AB}$ bisects chord $\overline{CD}$ at E. If $AE = 8$ and $BE = 9$, find the length of $\overline{CE}$ in simplest radical form.

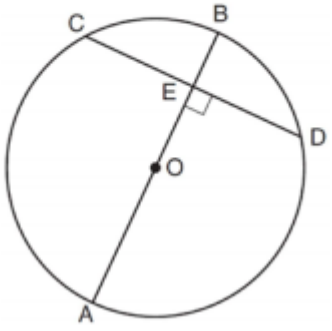


4. In the diagram below, circle O has a radius of 5, and $CE = 2$. Diameter $\overline{AC}$ is perpendicular to chord $\overline{BD}$ at E.

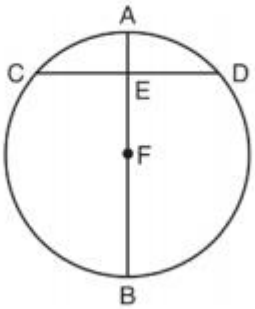


What is the length of $\overline{BD}$?

5. In the diagram below of circle O, diameter $\overline{AB}$ is perpendicular to chord $\overline{CD}$ at E. If $AO = 10$ and $BE = 4$, find the length of $\overline{CE}$.



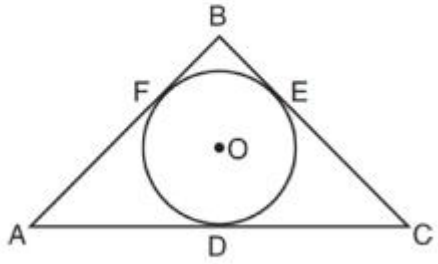
6. In the diagram below, diameter $\overline{AB}$ bisects chord $\overline{CD}$ at point E in circle F.



If $AE = 2$ and $FB = 17$, then the length of $\overline{CE}$ is

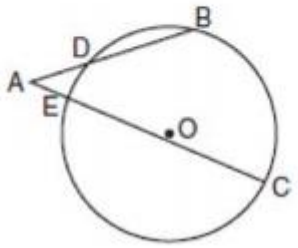
Tangent-Secant Length

1. In the diagram below, $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$ are tangents to circle O at points F, E, and D, respectively, $AF = 6$, $CD = 5$, and $BE = 4$.

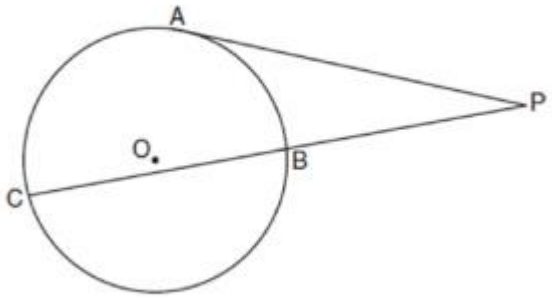


What is the perimeter of $\triangle ABC$?

2. In the accompanying diagram, secant $\overline{AB}$ intersects circle O at D, secant $\overline{AC}$ intersects circle O at E, $AE = 4$, $AC = 24$, and $AB = 16$. Find AD.

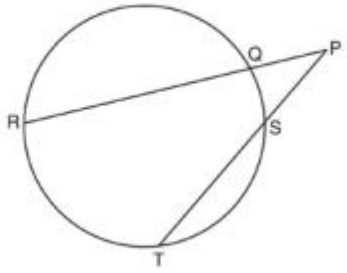


3. In the diagram below, tangent $\overline{PA}$ and secant $\overline{PBC}$ are drawn to circle O from external point P.



If $PB = 4$ and $BC = 5$, what is the length of $\overline{PA}$?

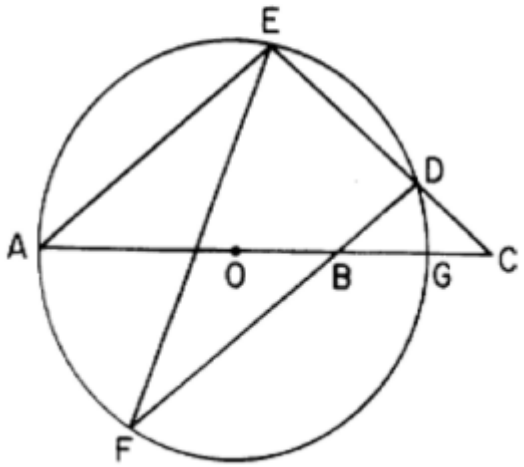
4. In the diagram below, secants $\overline{PQR}$ and $\overline{PST}$ are drawn to a circle from point P.



If $PR = 24$, $PQ = 6$, and $PS = 8$, determine and state the length of $\overline{PT}$.

Super Circles

1. In the accompanying diagram of 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 $m\overset{\frown}{AE} : m\overset{\frown}{ED} : m\overset{\frown}{DG} = 5:3:1$.



$m\overset{\frown}{DG}$ =

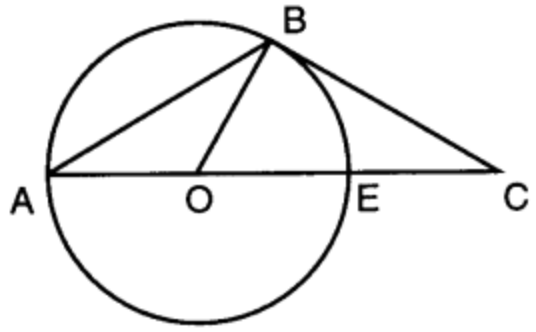
m∠AEF =

m∠DBG =

m∠DCA =

m∠CDF =

2. In the accompanying diagram of circle O, diameter $\overline{AE}$ is extended through E to C; tangent $\overline{CB}$, chord $\overline{AB}$, and radius $\overline{OB}$ are drawn; and $m\overset{\frown}{AB} : m\overset{\frown}{BE} = 2:1$.



$m\overset{\frown}{AB}$ =

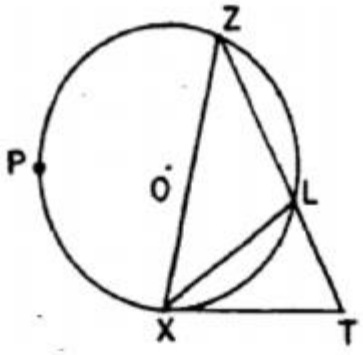
m∠BAC =

m∠C =

m∠ABC =

Is ΔOBC acute, right, obtuse, or equiangular? Why?

3. Given: circle O, tangent $\overline{TX}$, secant $\overline{TLZ}$, chords $\overline{ZX}$ and $\overline{XL}$, $m\overset{\frown}{XL} : m\overset{\frown}{LZ} : m\overset{\frown}{XPZ} = 2:2:5$.



$m\overset{\frown}{XL}$ =

m∠Z =

m∠T =

m∠ZXT =

m∠XLT =