

C Test Review 1

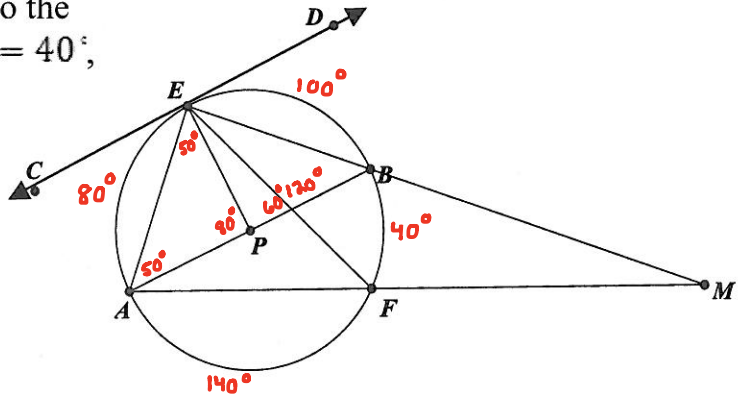
1. Write the standard equation for the circle with center $(2, 7)$, $r = 4$
- ~~a.~~ $(x - 7)^2 + (y - 2)^2 = 16$
 - ~~b.~~ $(x - 2)^2 + (y - 7)^2 = 4$
 - c.** $(x - 2)^2 + (y - 7)^2 = 16$
 - ~~d.~~ $(x + 2)^2 + (y + 7)^2 = 4$

- ~~2.~~ Write the standard equation for the circle with center $(-6, -8)$, that passes through $(0, 0)$
- ~~a.~~ $(x - 6)^2 + (y - 8)^2 = 10$
 - ~~b.~~ $(x - 6)^2 + (y - 8)^2 = 196$
 - ~~c.~~ $(x + 6)^2 + (y + 8)^2 = 14$
 - ~~d.~~ $(x + 6)^2 + (y + 8)^2 = 100$

- D** 3. Find the center and radius of the circle with equation $(x + 9)^2 + (y + 5)^2 = 64$.
- ~~a.~~ center $(5, 9)$; $r = 8$
 - ~~b.~~ center $(9, 5)$; $r = 64$
 - ~~e.~~ center $(-9, -5)$; $r = 64$
 - d.** center $(-9, -5)$; $r = 8$

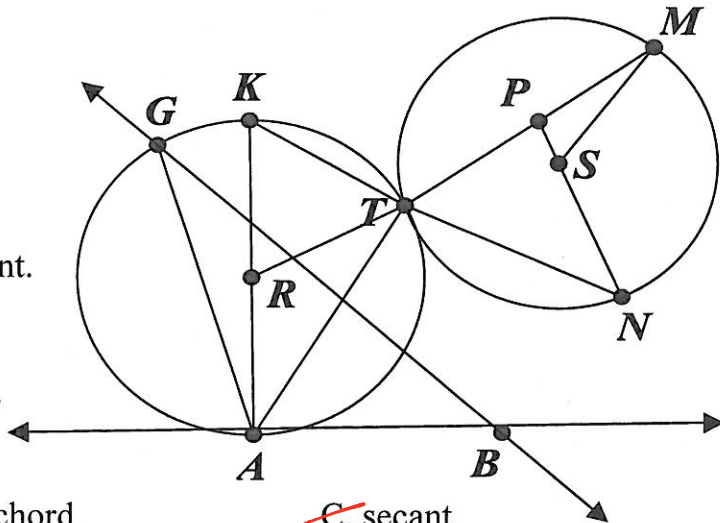
In the figure, \overline{AB} is a diameter, P is the center of the circle, \overline{CD} is a tangent to the circle at E. If $m\widehat{BE} = 100^\circ$ and $m\widehat{BF} = 40^\circ$, find the following measures:

- 140°** 4. $m\widehat{AF}$
- 80°** 5. $m\widehat{AE}$
- 100°** 6. $m\angle EPB$
- 40°** 7. $m\angle CEA$
- 20°** 8. $m\angle M$
- 50°** 9. $m\angle EAB$
- 10. $m\angle PEF$ **20°**
- 11. $m\angle AEP$ **50°**
- 12. $m\angle EFM$ **140°**
- 13. $m\angle DEF$ **20°**
- 14. $m\angle BAF$ **20°**



Matching. In the figure the two circles, with centers R and S, intersect only at T and $\overline{AB} \perp \overline{RA}$.

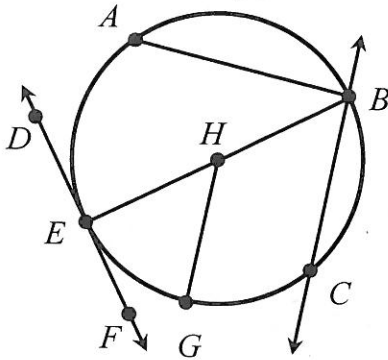
- 15. \overline{AB} is a **F**.
- 16. \overline{KA} is a **A**.
- 17. \overline{NS} is a **D**.
- 18. \overline{BG} is a **C**.
- ~~19.~~ Circles R and S are **J** tangent.
- 20. \overline{KT} is a **B**.
- 21. R is a **E**.
- 22. Point P is a(n) **G** of circle S.
- 23. Point B is a(n) **H** of circle



- ~~A.~~ diameter
- ~~D.~~ radius
- ~~G.~~ interior point
- J. internally
- ~~B.~~ chord
- ~~E.~~ center of circle
- ~~H.~~ exterior point
- ~~C.~~ secant
- ~~F.~~ tangent
- I. externally

PARTS OF CIRCLES

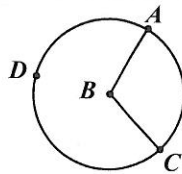
1 Directions: Using the circle below, give an example of each part.



- a) Center: H
- b) Chord: AB EB
- c) Diameter: EB BE
- d) Radius: EH HB HG
- e) Central Angle: ∠EHG ∠BHG
- f) Inscribed Angle: ∠ABE
- g) Major Arc: BAG BEC ABB CAB
- h) Minor Arc: AB BC EC AE
- i) Semicircle: EAB BCE
- j) Tangent: DF
- k) Point of Tangency: E
- l) Secant: BC

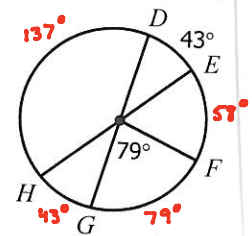
CENTRAL ANGLES

A central angle is an angle with a vertex on the center of a circle.



The sum of all central angles in a circle is 360°.

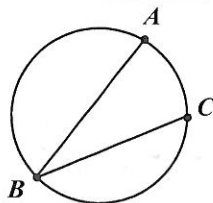
2. Find each arc measure.



- a) $m\widehat{EF}$ 58°
- b) $m\widehat{DH}$ 137°
- c) $m\widehat{GE}$ 137°
- d) $m\widehat{HF}$ 122°
- e) $m\widehat{EDG}$ 223°
- f) $m\widehat{HDF}$ 238°

INSCRIBED ANGLES

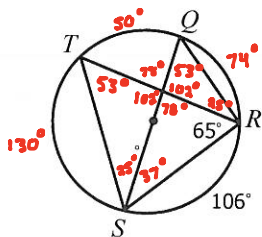
An inscribed angle is an angle with a vertex on the edge of the circle.



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

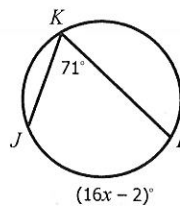
$$m\angle ABC = \frac{1}{2} m\widehat{AC}$$

3. Find each measure.



- a) $m\angle STR$ 53°
- b) $m\angle QRS$ 37°
- c) $m\widehat{TQ}$ 50°
- d) $m\angle SQR$ 53°
- e) $m\widehat{ST}$ 130°
- f) $m\widehat{QR}$ 74°

4. Find the value of x.



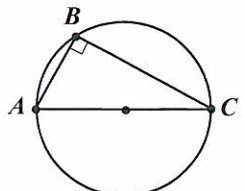
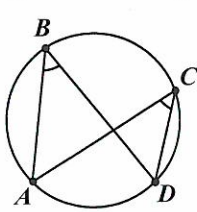
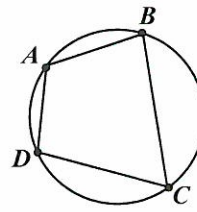
$$\frac{16x - 2}{2} = 71$$

$$8x - 1 = 71$$

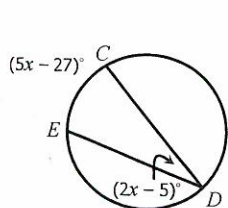
$$8x = 72$$

$$\frac{8x}{8} = \frac{72}{8}$$

$$x = 9$$

INTERCEPTING A DIAMETER	OVERLAPPING ARCS	INSCRIBED QUADRILATERALS
<p>An inscribed angle that intercepts a diameter or semicircle is equal to 90°.</p>  <p>$m\angle ABC = 90^\circ$</p>	<p>If two inscribed angles intercept the same arc, then the angles are congruent.</p>  <p>$m\angle ABD = m\angle ACD$</p>	<p>If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.</p>  <p>$m\angle A + m\angle C = 180^\circ$ $m\angle B + m\angle D = 180^\circ$</p>

5. Find $m\widehat{EC}$.



$$5x - 27 = 2(2x - 5)$$

$$5x - 27 = 4x - 10$$

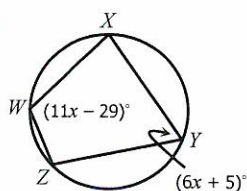
$$\frac{-4x + 27}{-4x + 27} = \frac{-4x + 10}{-4x + 27}$$

$$x = 17$$

$$m\widehat{EC} = 58^\circ$$

DO NOT

6. Find $m\angle W$.



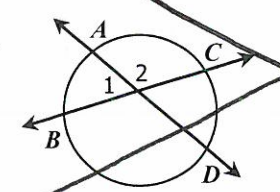
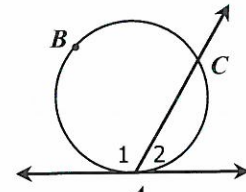
$$11x - 29 + 6x + 5 = 180$$

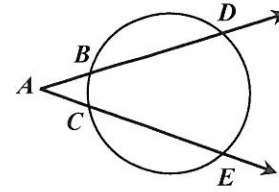
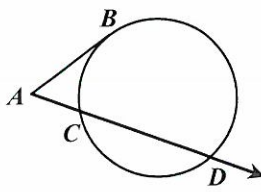
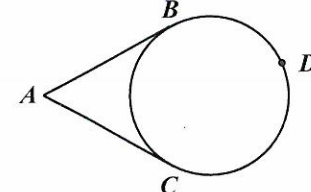
$$17x + 24 = 180$$

$$\frac{17x + 24}{17} = \frac{180}{17}$$

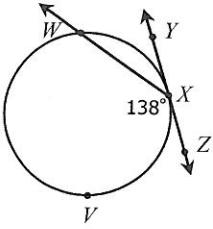
$$x = 12$$

$$m\angle W = 103^\circ$$

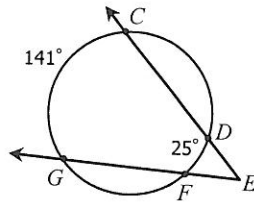
INTERIOR INTERSECTIONS (omit)	ON THE CIRCLE INTERSECTION
<p>Two Chords (or Secants)</p>  <p>$m\angle 1 = \frac{1}{2}(m\widehat{AB} + m\widehat{CD})$ $m\angle 2 = \frac{1}{2}(m\widehat{AC} + m\widehat{BD})$</p>	<p>Secant & Tangent</p>  <p>$m\angle 1 = \frac{1}{2}(m\widehat{ABC})$ $m\angle 2 = \frac{1}{2}(m\widehat{AC})$</p>

EXTERIOR INTERSECTIONS		
<p>Two Secants</p>  <p>$m\angle A = \frac{1}{2}(m\widehat{DE} - m\widehat{BC})$</p>	<p>Secant & Tangent</p>  <p>$m\angle A = \frac{1}{2}(m\widehat{BD} - m\widehat{BC})$</p>	<p>Two Tangents</p>  <p>$m\angle A = \frac{1}{2}(m\widehat{BDC} - m\widehat{BC})$</p>

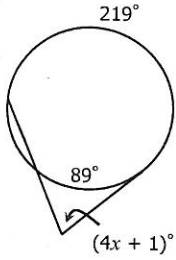
7. Find $m\widehat{WX} = 84^\circ$



8. Find $m\angle E = 58^\circ$



9. Find the value of x .



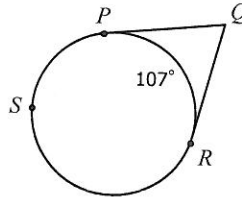
$$4x + 1 = \frac{1}{2}(219 - 89)$$

$$4x + 1 = 65$$

$$\frac{4x}{4} = \frac{64}{4}$$

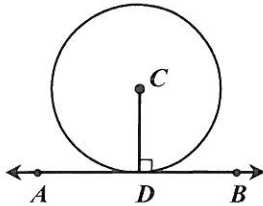
$$x = 16$$

10. Find $m\angle Q = 73^\circ$



TANGENTS

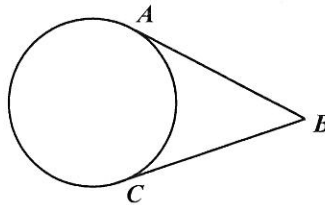
A line is tangent to a circle if and only if it is perpendicular to a radius drawn to the point of tangency.



$$\overline{AB} \perp \overline{CD}$$

CONGRUENT TANGENTS

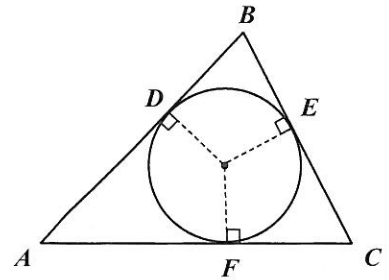
If two segments from the same exterior point are tangent to a circle, then they are congruent.



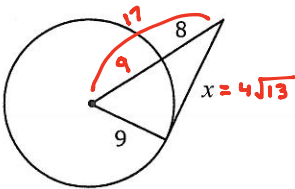
$$AB = BC$$

CIRCUMSCRIBED POLYGONS

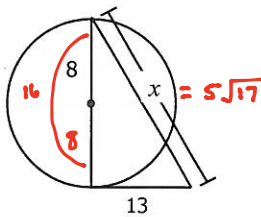
If a polygon is circumscribed around a circle, then all sides are tangent to the circle.



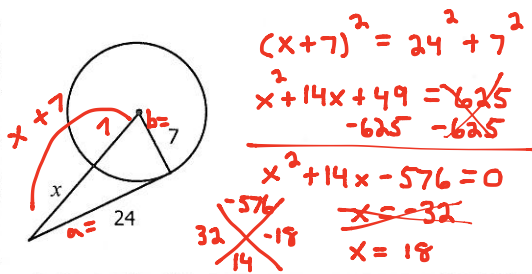
11. Find the value of x .



12. Find the value of x .

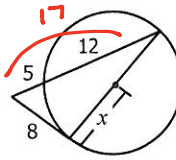


13. Find the value of x .



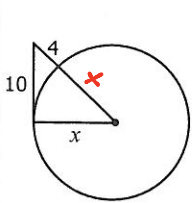
$$\begin{aligned} (x+7)^2 &= 24^2 + 7^2 \\ x^2 + 14x + 49 &= 625 \\ x^2 + 14x - 576 &= 0 \\ x &= 18 \end{aligned}$$

14. Find the value of x .



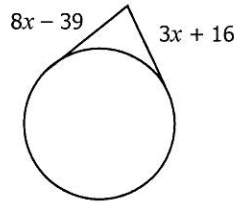
$$x = 7.5$$

15. Find the value of x .



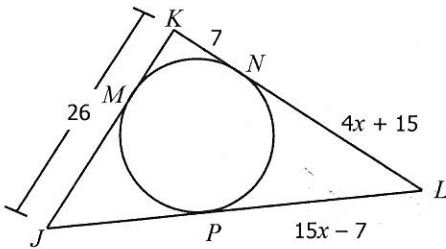
$$\begin{aligned} x^2 + 10^2 &= (x+4)^2 \\ x^2 + 100 &= x^2 + 8x + 16 \\ 8x &= 84 \\ x &= 10.5 \end{aligned}$$

16. Find the value of x .



$$\begin{aligned} 8x - 39 &= 3x + 16 \\ 5x &= 55 \\ x &= 11 \end{aligned}$$

17. Find the perimeter of $\triangle JKL$.



18. Write in general form :

$$\begin{aligned} (x+5)^2 + (y-3)^2 &= 4 \\ x^2 + 10x + 25 + y^2 - 6y + 9 &= 4 \\ x^2 + 10x + y^2 - 6y + 34 &= 4 \\ x^2 + 10x + y^2 - 6y + 30 &= 0 \end{aligned}$$

19. Write in standard form:

$$\begin{aligned} x^2 + y^2 - 6x + 8y + 3 &= 0 \\ x^2 - 6x + 9 + y^2 + 8y + 16 &= -3 \\ (x-3)^2 + (y+4)^2 &= 22 \end{aligned}$$