Geometry **Name** Key

Chapter 10 Review

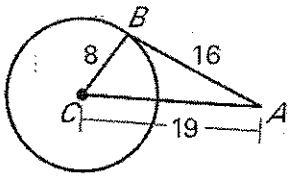
1. In the diagram, $\overline{BC}$ is a radius of circle C. Determine whether $\overline{AB}$ is tangent to circle C. State yes or no and show supporting work.

$8^2 + 16^2 \stackrel{?}{=} 19^2$

$64 + 256 = 361$

$320 \neq 361$

No, $\overline{AB}$ is not tangent to ⊙C



2. In the diagram, $\overline{AB}$ is tangent to circle C at point B. Find the radius r.

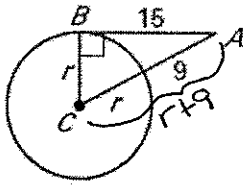
$r^2 + 15^2 = (r+9)^2$

$\cancel{r^2} + 225 = \cancel{r^2} + 18r + 81$

$144 = 18r$

$8 = r$

$r = 8$



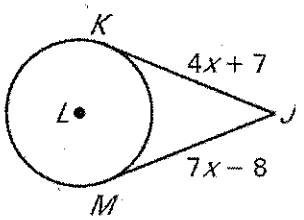
3. The points K and M are points of tangency. Find the value(s) of x.

$4x + 7 = 7x - 8$

$15 = 3x$

$5 = x$

$x = 5$



4. The points K and M are points of tangency. Find the value(s) of x

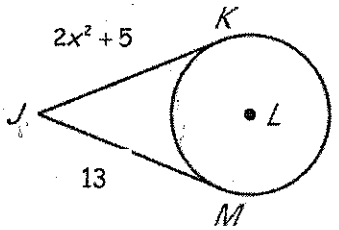
$2x^2 + 5 = 13$

$2x^2 = 8$

$x^2 = 4$

$x = \pm 2$

$x = \pm 2$



5. The points K and M are points of tangency. Find the value(s) of x

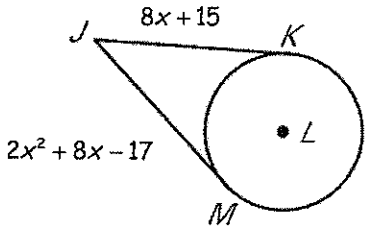
$2x^2 + \cancel{8x} - 17 = \cancel{8x} + 15$

$2x^2 = 32$

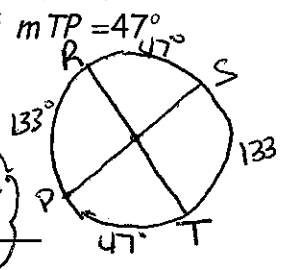
$x^2 = 16$

$x = \pm 4$

$x = 4$ only!



6. Two diameters of circle N are $\overline{RT}$ and $\overline{PS}$. Find the given arc measure if $m\widehat{TP} = 47°$. Draw a picture to help!



$m\widehat{ST}$ = 133° $m\widehat{PS}$ = 180° $m\widehat{RTP}$ = 227° $m\widehat{STR}$ = 313°

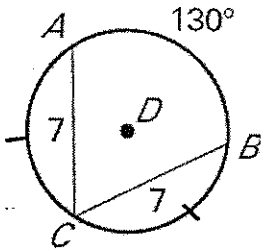
7. If there is enough information, find the measure of $m\widehat{AC}$.

≅ chords ∴ ≅ arcs

360 − 130 = 230

230 ÷ 2 = 115

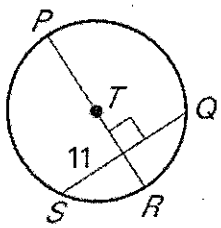
$m\widehat{AC} = 115°$



8. If there is enough information, find the measure of chord QS.

if diameter is ⊥ then it bisects the chord

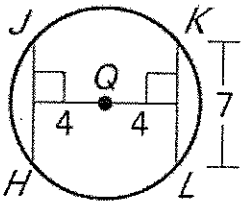
QS = 22



9. If there is enough information, find the measure of chord HJ.

If 2 chords are equidistant from center they are ≅

HJ = 7



10. Find $m\angle A$ and $m\angle C$.

∡A = 45°

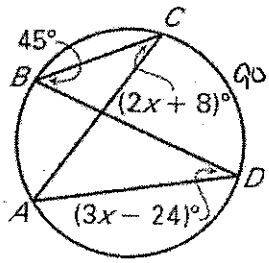
∡C = 72°

∡C = ∡D (intercept same arc)

2x + 8 = 3x − 24

32 = x

∡C = 2(32) + 8 = 72°



11. Find $m\angle A$ and $m\angle C$.

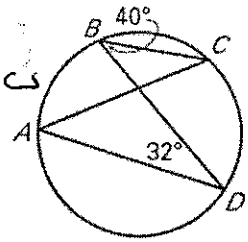
∡A = 40°

∡C = 32°

∡B = ∡A

∡C = ∡D

intercept same arcs



12. Find the value of the variables.

X = 39

Y = 29

3x + 63 = 180

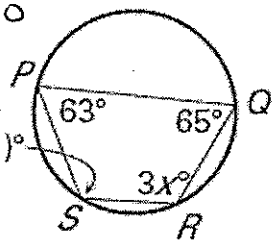
3x = 117

x = 39

4y − 1 + 65 = 180

4y = 116

y = 29



13. Find the value of the variables.

∡F = ½(96 + 45)

∡F = 70.5°

12x = ½(96 + 48)

12x = 72

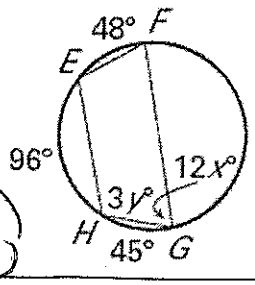
x = 6

3y + 70.5 = 180

3y = 109.5

y = 36.5

x = 6 y = 36.5



Find the indicated measure in circle O, given $m\widehat{CD} = 85°$ and $m\widehat{BE} = 97°$.

14. $m\angle ABC =$ 90°

15. $m\angle CED =$ 42.5°

16. $m\angle BDE =$ 48.5°

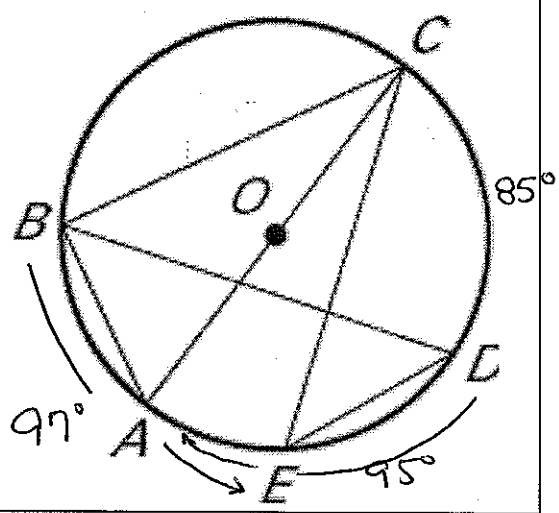
17. $m\angle CBD =$ 42.5°

18. $m\angle ABD =$ 47.5°

19. $m\angle BCE =$ 48.5°

20. $m\widehat{AD} =$ 95°

21. $m\widehat{ABC} =$ 180°



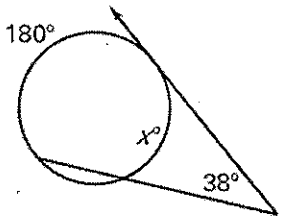
22. Find the value of x.

$38 = \frac{1}{2}(180 - x)$

$76 = 180 - x$

$-104 = -x$

$x = 104$



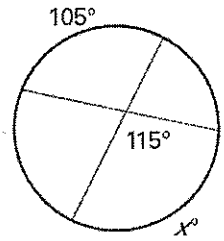
23. Find the value of x.

$115 = \frac{1}{2}(x + 105)$

$230 = x + 105$

$125 = x$

$x = 125$

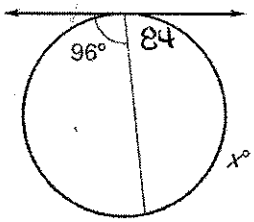


24. Find the value of x.

$84 = \frac{1}{2}x$

$168 = x$

$x = 168$



25. Find the value of x.

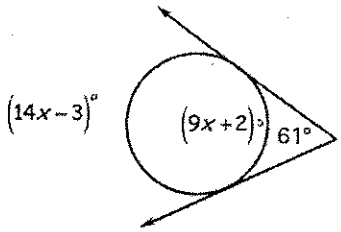
$61 = \frac{1}{2}(14x - 3 - (9x + 2))$

$122 = 14x - 3 - 9x - 2$

$122 = 5x - 5$

$127 = 5x \longrightarrow x = 25.4$

$x = 25.4$



26. The diameter of a circle is 14 feet. Exactly how far from the center of the circle is a chord that is 6 feet?

$x^2 + 3^2 = 7^2$

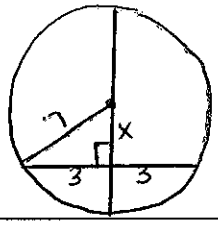
$x^2 + 9 = 49$

$x^2 = 40$

$x = \pm\sqrt{40}$

$x = \pm 2\sqrt{10}$

$x = 2\sqrt{10}$ ft



27. Find the value of x.

$4x \cdot x = 5 \cdot 5$

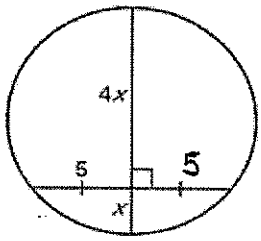
$4x^2 = 25$

$x^2 = \frac{25}{4}$

$x = \pm\sqrt{\frac{25}{4}}$

$x = \pm 5/2$

$x = 5/2$ or 2.5



28. Find the value of x.

$(3x)^2 = 2x(2x+10)$

$9x^2 = 4x^2 + 20x$

$5x^2 = 20x$

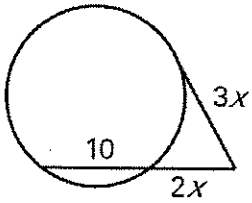
$5x^2 - 20x = 0$

$5x(x-4) = 0$

$5x = 0 \quad x - 4 = 0$

$\cancel{x = 0}$ $\quad x = 4$

extraneous



29. Find the value of x.

$4(2x-1) = (x-2)(x+7)$

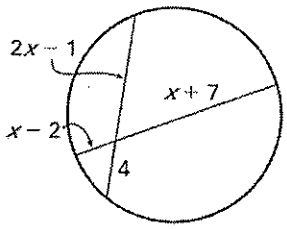
$8x - 4 = x^2 + 7x - 2x - 14$

$0 = x^2 - 3x - 10$

$0 = (x-5)(x+2)$

$x - 5 = 0 \quad x + 2 = 0$

$x = 5$, $x \neq -2$ extraneous



30. Find the value of x.

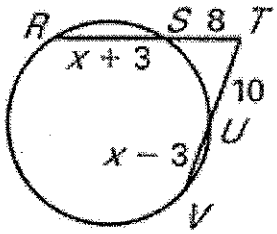
$8(x+11) = 10(x+7)$

$8x + 88 = 10x + 70$

$18 = 2x$

$9 = x$

$x = 9$



31.

The pass is 14.2 ft

Basketball The Xs show the positions of two basketball teammates relative to the circular "key" on a basketball court. The player outside the key passes the ball to the player on the key. To the nearest tenth of a foot, how long is the pass?

$5(5+12) = 6(6+x)$

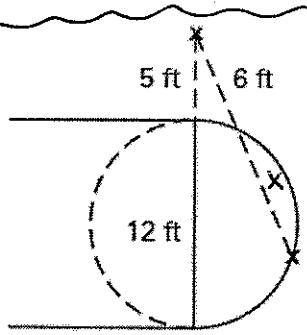
$5(17) = 36 + 6x$

$85 = 36 + 6x$

$49 = 6x$

$8.1666\ldots = x$

$\boxed{x \approx 8.2 \text{ ft}}$



32. Given a circle : $(x+2)^2 + (y-4)^2 = 25$

$(-2+2)^2 + (y-4)^2 = 25$

$0 + (y-4)^2 = 25$

$y - 4 = \pm 5$

$y - 4 = 5$, $y = 9$

$y - 4 = -5$, $y = -1$

a) What is the center? $(-2, 4)$

b) What is the length of the radius? 5

c) If (-2, y) is on this circle, what is/are the exact coordinate(s) of y? 9 or −1

$(-2, 9)$ $(-2, -1)$