9.2 Chord Properties Day 1 Homework

Name: Key

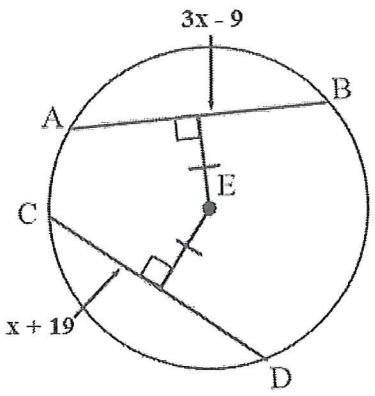
Date: _____ **Period:** _____

arning Targets - Chord Properties

- I can identify and apply the Perpendicular to a Chord Conjecture.
- I can identify and apply the Perpendicular Bisector of a Chord Conjecture.
- I can identify and apply the Chord Distance to Center Conjecture.

Find the missing information.

1.

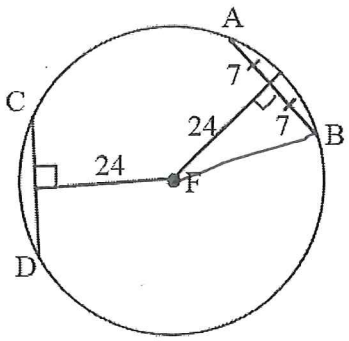


$3x - 9 = x + 19$
$+9 \quad +9$
$3x = x + 28$
$-x \quad -x$
$\frac{2x}{2} = \frac{28}{2}$
$x = 14$

$\overline{AB} \cong \overline{CD}$

x = 14

2.

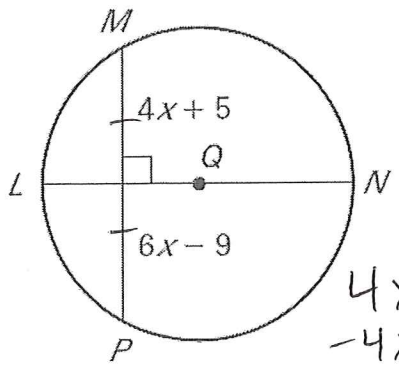


$7^2 + 24^2 = (FB)^2$
$49 + 576 = (FB)^2$
$\sqrt{625} = \sqrt{(FB)^2}$

$\overline{CD} \cong \overline{AB}$

FB = 25

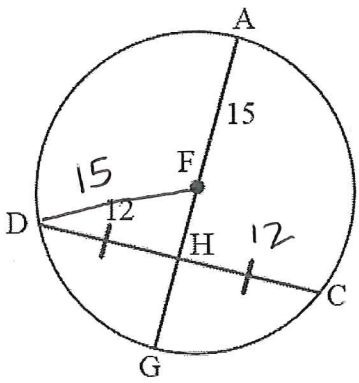
3.



$4x + 5 = 6x - 9$
$-4x \quad -4x$
$5 = 2x - 9$
$+9 \quad +9$
$\frac{14}{2} = \frac{2x}{2}$

x = 7

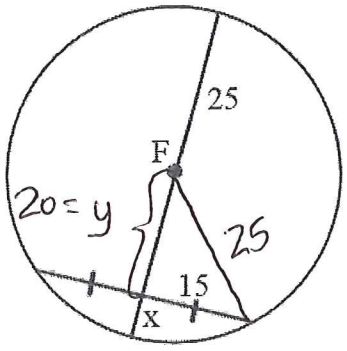
4.



$x^2 + 12^2 = 15^2$
$x^2 + 144 = 225$
$\sqrt{x^2} = \sqrt{81}$

FH = 9

5.



$y^2 + 15^2 = 25^2$

$y^2 + 225 = 625$

$-225 \quad -225$

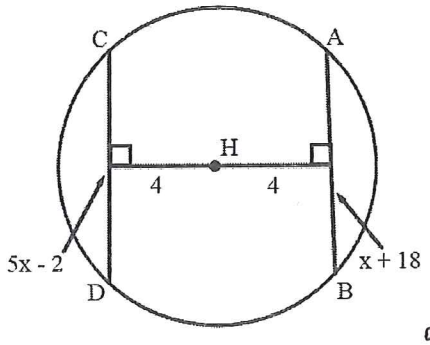
$\sqrt{y^2} = \sqrt{400}$

$y = 20$

$x = 25 - 20$

x = 5

6.



$5x - 2 = x + 18$

$-x \quad -x$

$4x - 2 = 18$

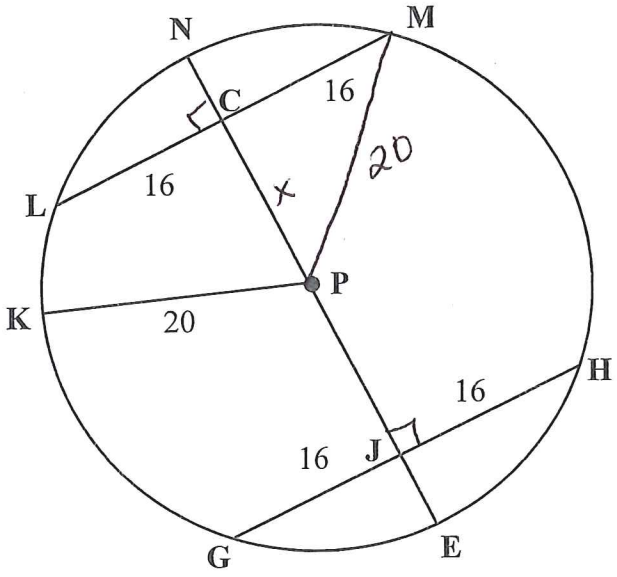
$+2 \quad +2$

$\frac{4x}{4} = \frac{20}{4}$

$x = 5$

x = 5

Use circle P at the right to answer # 7 - 11



7. Name three chords

$\overline{LM}$, $\overline{NE}$, $\overline{GH}$

8. Name eight right angles

$\angle NCL$, $\angle NCM$, $\angle MCP$, $\angle PCL$

$\angle GJP$, $\angle PJH$, $\angle HJE$, $\angle EJG$

9. $\overline{GH} \cong \overline{LM}$

10. $\overline{PC} \cong \overline{PJ}$

11. Find the length of $\overline{PC}$

$x^2 + 16^2 = 20^2$

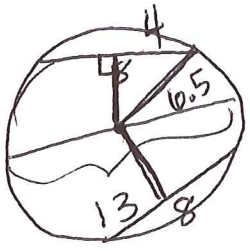
$x^2 + 256 = 400$

$-256 \quad -256$

$\sqrt{x^2} = \sqrt{144}$

PC = 12

12. A circle has a diameter of 13cm. In the circle, each of two chords is 8cm long. What is the shortest distance from each chord to the center of the circle? Round to the nearest tenth.



$4^2 + x^2 = 6.5^2$

$16 + x^2 = 42.25$

$-16 \quad -16$

$\sqrt{x^2} = \sqrt{26.25}$

x = 5.1 cm

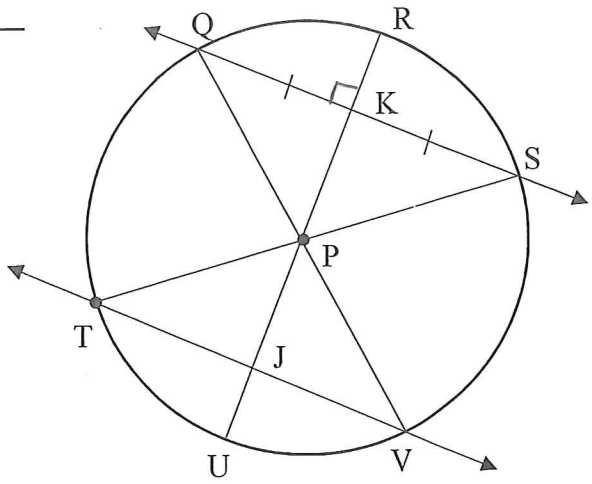
9.2 Chord Properties Day 2 Homework **Name:** Key

Date: _____ **Period:** _____

arning Targets - Chord Properties

- I can determine and apply the relationship between congruent chords and their central angles and intercepted arcs.
- I can identify and apply the Perpendicular to a Chord Conjecture.
- I can identify and apply the Perpendicular Bisector of a Chord Conjecture.
- I can identify and apply the Chord Distance to Center Conjecture.

Use the figure at the right to find the missing information. Assume $\overline{TS}$ and $\overline{QV}$ and $\overline{RU}$ are diameters.



1. **Name two central angles** ∠QPR ; ∠RPS

2. **Name two chords** $\overline{TS}$; $\overline{QS}$

3. **Name four right angles**

∠RKQ ; ∠RKS ; ∠SKP ; ∠PKQ

4. $\angle QPS \cong$ ∠TPV

5. $\overline{QS} \cong$ $\overline{TV}$

6. $\widehat{QS} \cong$ $\widehat{TV}$

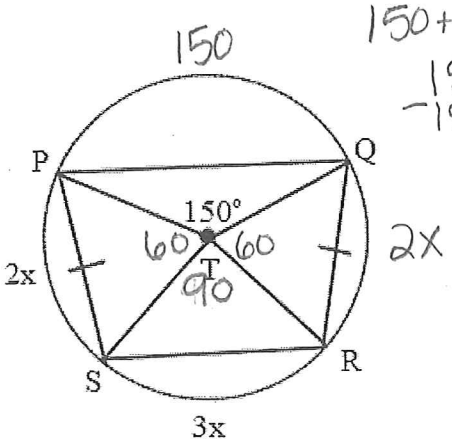
7. **If $m\widehat{QS} = 105°$, find the following:**

   a) $m\widehat{TV} =$ 105°

   b) $m\widehat{TQ} =$ 75°

   c) $m\widehat{SVT} =$ 180°

8.



150 + 2x + 3x + 2x = 360

150 + 7x = 360

−150 −150

7x = 210

7 7

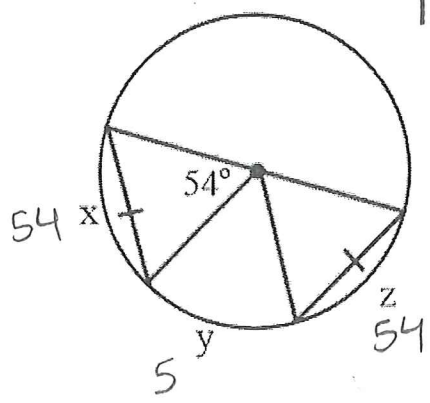
x = 30

x = 30

$m\angle STR =$ 90° ← 3(30)

$m\widehat{PR} =$ 150°

9.



180 − 54 − 54

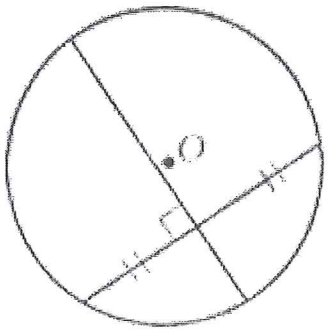
x = 54°

y = 72°

z = 54°

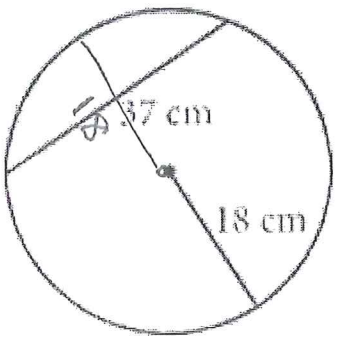
10. What's wrong with the pictures?

a.)



The cord that is perpendicularly bisected should cross the circle

b.)



The diameter length is 36 cm. So the chord shown cannot be 37 cm (greater)

Use circle P at the right to answer # 11 - 16

11. Find the length of the diameter of Circle P

students: Given EK=12

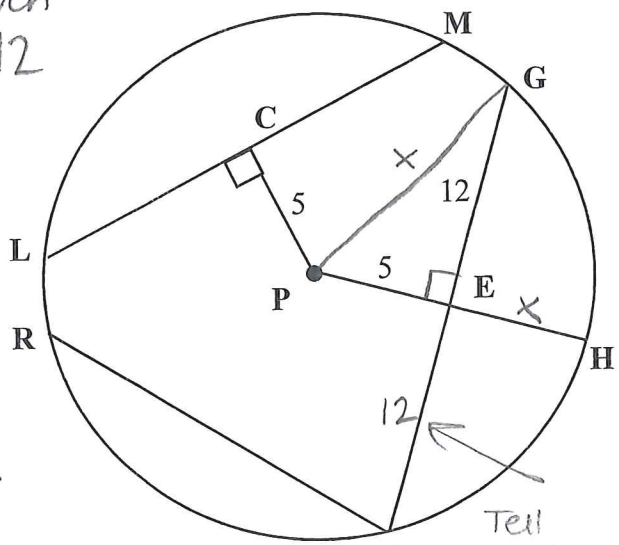
radius $5^2+12^2=x^2$

$25+144=x^2$

$\sqrt{169}=\sqrt{x^2}$

$13=x$

diameter: 26



12. Name six right angles

∠LCP; ∠PCM; ∠PEG; ∠GEH; ∠PEK; ∠HEK

13. $\overline{ML} \cong$ $\overline{GK}$

14. $\overset{\frown}{ML} \cong$ $\overset{\frown}{GK}$

15. Find the length of $\overline{EH}$.

$13-5 \Rightarrow EH=8$

16. Can you determine whether $\overline{RK} \cong \overline{GK}$? Explain.

No, we do not have any indication of the length of RK, nor its distance from center, nor the arcs $\overset{\frown}{RK}$ and $\overset{\frown}{GK}$.