Geometry
12.1-12.2, 12.5 Study Guide

Name:_____
Due Tuesday, February 20th

12.5.a Learning Target: Identify center and radii of circles given a standard equation of a circle.

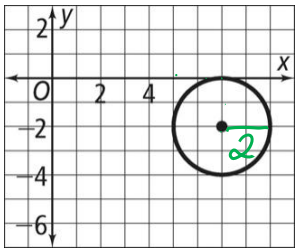
Circle Equation: $(x-h)^2+(y-k)^2=r^2$

Center: (h,k) Radius: r

1. Write the equation of a circle with a center at (7, -5) and a radius of 8.

$(x-7)^2+(y+5)^2=64$

2. Write the equation of a circle of the graph below.



$C=(7,-2)$

$r=2$

$(x-7)^2+(y+2)^2=4$

3. Find the center and radius of the circle $(x+2)^2+(y+11)^2=50$

center = $(-2,-11)$

radius = $\sqrt{50}=5\sqrt{2}$

4. Find the equation of the circle having center at (7, -2) and has a point (-1, -6)

$r=\sqrt{(7+1)^2+(-2+6)^2}=\sqrt{8^2+4^2}$

$r=\sqrt{64+16}$

$r=\sqrt{80}$

$(x-7)^2+(y+2)^2=80$

True or False?? If false, correct the statement!

5. The circle $x^2 + y^2 = 7$ has radius 7.

False! $r=\sqrt{7}$

6. The center of the circle $(x-6)^2 + (y+4)^2 = 1$ lies in the second quadrant.

False! IV Quad.

7. The circle $(x+1)^2 + (y-4)^2 = 4$ intersects the y-axis.

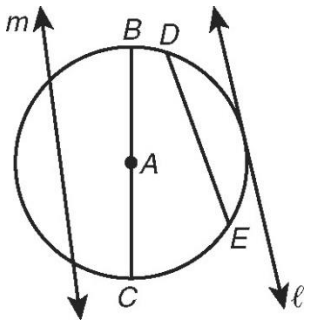
True! Draw a picture!

8. The equation of the circle centered at the origin with ~~diameter~~ 6 is $x^2 + y^2 = 36$.

False! radius = 6

12.1.a Learning Target: Identify tangents, secants, and chords.

1.



Name a chord: $\overline{DE}$ or $\overline{BC}$

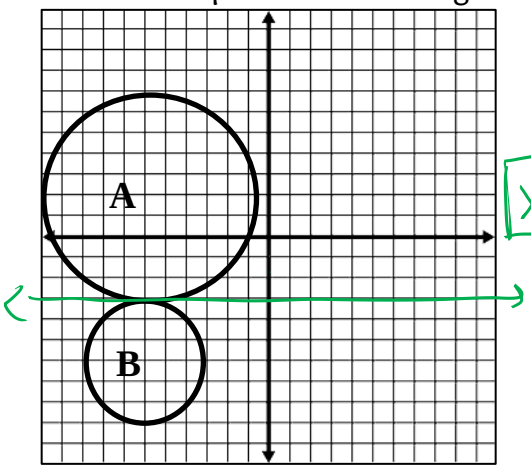
Name a tangent: ℓ

Name a radius: $\overline{AC}$ or $\overline{AB}$

Name a secant: m

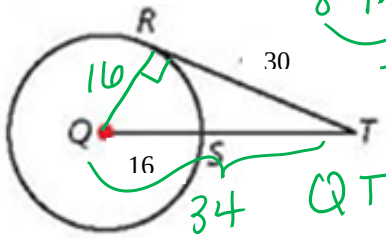
Name a diameter: $\overline{BC}$

2. Write the equation of the tangent line.



$x=-3$

3. Line RT is tangent to circle Q. Find ST.



8-15-17 x 2

Triple!

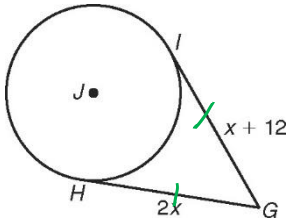
34

$QT = 17 \times 2 = 34$

$ST = 34 - 16$

$\boxed{ST = 18}$

4. In the diagram below, $\overline{GH}$ and $\overline{GI}$ are tangent to ⊙J. Find GH.



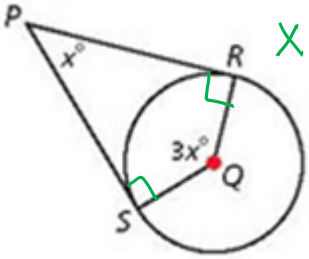
$x + 12 = 2x$

$12 = x$

$GH = 2(12)$

$\boxed{GH = 24}$

5. Lines PR and PS are tangent to circle Q. Find ∠P.



$x + 3x + 90 + 90 = 360$

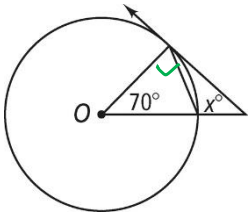
$4x + 180 = 360$

$4x = 180$

$x = 45°$

$\boxed{m\angle P = 45°}$

6. Given the ray is tangent to circle O, find x.

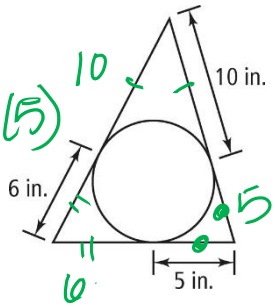


$70 + 90 + x = 180$

$160 + x = 180$

$\boxed{x = 20°}$

7. The circle is inscribed in the triangle. Find the perimeter.



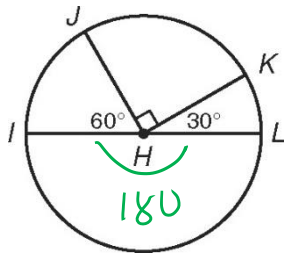
$P = 2(10) + 2(6) + 2(5)$

$P = 20 + 12 + 10$

$\boxed{P = 42 \text{ in}}$

12.2.a Learning Target: Apply properties of arcs.

8. Find $m\widehat{IK}$ and $m\widehat{JIL}$.



$m\widehat{IK} = 90+60$

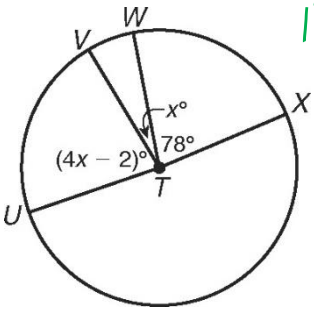
$m\widehat{IK} = 150°$

180

$m\widehat{JIL} = 60+180$

$m\widehat{JIL} = 240°$

9. Find $m\widehat{VUX}$



1st:

$4x-2+x+78=180$

$5x+76=180$

$5x=104$

$x=20.8$

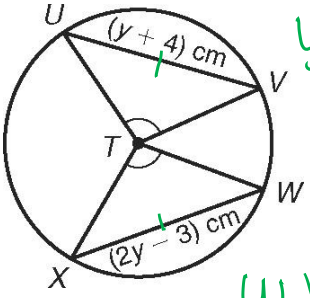
$m\widehat{VUX} = 180 + \widehat{VU}$

$= 180 + 4(20.8)-2$

$m\widehat{VUX} = 261.2°$

12.2.b Learning Target: ~~Apply properties of chords~~

10. Find WX.



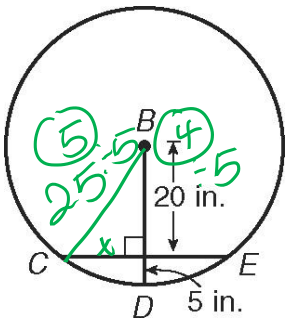
$y+4 = 2y-3$

$7 = y$

$WX = 2(7)-3$

$WX = 11$ cm

11. Find CE. $r=25$



3-4-5 $\triangle \times 5$

$CD = 3\times 5$

$CD = 15$

$CE = 2(15)$

$CE = 30$ in

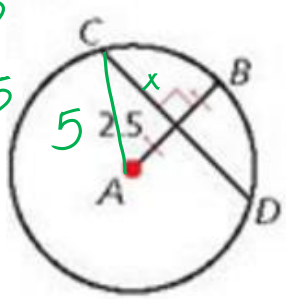
12. Find CD.

$2.5^2 + x^2 = 5^2$

$6.25 + x^2 = 25$

$x^2 = 18.75$

$x \approx 4.33$



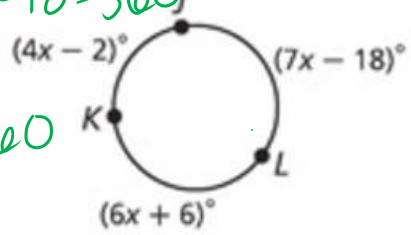
$CD = 2(4.33) \approx 8.66$

13. Find $\widehat{JL}$

$4x-2+6x+6+7x-18=360$

$17x-14=360$

$x=22$



$m\widehat{JL} = 7(22)-18$

$m\widehat{JL} = 136°$

Remember to study from your notes and homework as well! Good Luck!