Geometry   Name: ___Key ☺___

Day 7 - Monday Review In Class   *Sections 12.1, 12.2, 12.5*

✓ 12.5a Learning Target: Identify center and radii of circles given a standard equation of a circle.
  9x

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│ **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 (-1, 0) and a radius of 3.
   h k   r

$$(x+1)^2+y^2=9$$

2. Find the center and the radius of the circle
   $(x-5)^2+(y+4)=12$
   h   k   r

   center   radius = $\sqrt{12}$
   $(5,-4)$ $r=2\sqrt{3}$

3. Find the center and radius of the circle $x^2+y^2=36$.
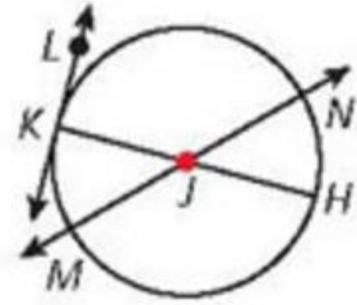
   center = $(0,0)$

   radius = 6

4. Find the equation of the circle having center at (-6, -1) and has a point (-4, 3)

   $r=\sqrt{(-6+4)^2+(-1-3)^2}$ $(x+6)^2+(y+1)^2=20$
   $=\sqrt{(-2)^2+(-4)^2}$
   $=\sqrt{4+16}=\sqrt{20}$

✓ 12.1.a Learning Target: Identify tangents, secants, and chords.
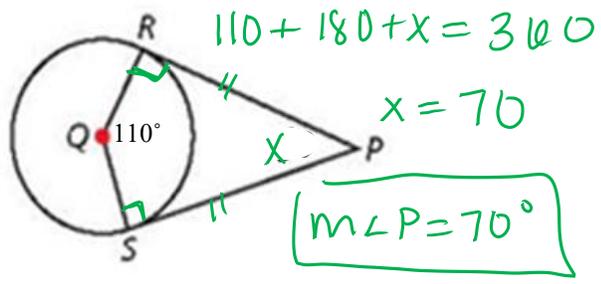
5. Name a chord: $\overline{KH}$

   Name a tangent: $\overleftrightarrow{LK}$

   Name a radius: $\overline{JH}$ or $\overline{KJ}$

   Name a secant: $\overleftrightarrow{MN}$

   Name a diameter: $\overline{KH}$
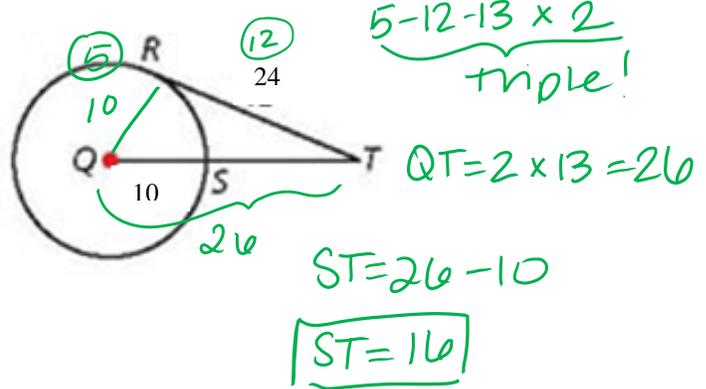

✓ 12.1.b Learning Target: Use properties of tangles to solve problems.

o Radius – Tangent Relationship: _Radius is ⊥ to the tangent Line_

o Tangent – Tangent Relationship: _2 tangents of the same ⊙ are ≅ when they meet @ the same pt._

6. $\overline{PR}$ and $\overline{PS}$ are tangent to ⊙Q. Find the m∠P.

   $110+180+x=360$
   $x=70$

   $m\angle P=70°$

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

   5-12-13 x 2
   triple!

   $QT=2×13=26$

   $ST=26-10$

   $ST=16$

8. Lines PR and PS are tangent to circle Q. PR = 9x - 2 and PS = 7x + 4. Find PS.

$$9x-2=7x+4$$
$$2x=6$$
$$x=3$$
$$PS=7(3)+4$$
$$\boxed{PS=25}$$

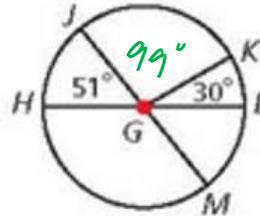**9.** Is the following segment tangent to the circle? Explain/show work to prove.

$$9^2+14^2\ ?\ 17^2$$
$$81+196\ ?\ 289$$
$$277\neq289\ \boxed{\text{NO!! Does not form Right} \triangle!}$$

✓ 12.2.a Learning Target: Apply Properties of arcs.

10. Use circle G to find $\widehat{JK}$, $m\widehat{JHL}$, and $m\widehat{JM}$

$$\widehat{JK}=180-81=99°$$
$$\widehat{JHL}=180+51=231°$$
$$\widehat{JM}=180°$$

✓ 12.2.b Learning Target: Apply Properties of chords
- If the diameter of a circle is perpendicular to a chord, then the diameter __bisects__ the chord and its arc.
- If one chord is a perpendicular bisector of another chord, then the first chord is a diameter.
- If two chords are congruent, then their corresponding minor arcs are ___≅___.
- If two minor arcs are congruent, then their corresponding chords are ___≅___

11. Find x.

$$x+6=3x-8$$
$$14=2x$$
$$\boxed{x=7}$$

12. Given circle C, find AB.

$$x+7=3x+1$$
$$6=2x$$
$$x=3$$
$$\boxed{AB=10}$$
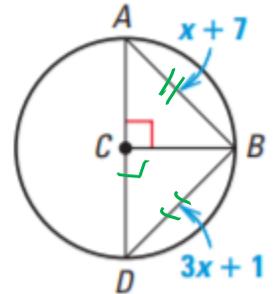
13. Given circle C to the right, answer the following...
a) Explain why $\widehat{AD}\cong\widehat{EB}$

Since $\overline{AD}\cong\overline{EB}$, then the corr. arcs are ≅

b) Find x.

$$15x-40=10x+10$$
$$5x=50\quad\boxed{x=10}$$

c) Find $m\widehat{AD}$ and $m\widehat{EB}$

$$m\widehat{AD}=110°=m\widehat{EB}$$

d) Find $m\widehat{BD}$

$$\boxed{m\widehat{BD}=100°}$$

$$110+110+40+x=360$$
$$x=100$$