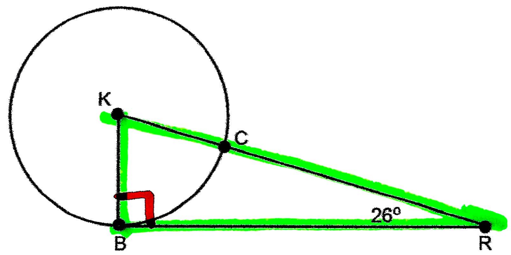
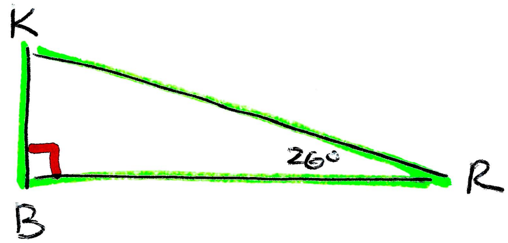
Geo Weekly Review: 4/27 to 4/30 Friday, May 1, 2020 ANSWERS

Round answers to the nearest hundredth unless noted otherwise. The center in each circle is pt K.
For 1-4 assume that lines that appear tangent to a circle are actually tangent.

1.





a) Find the measure of Central Angle $\angle BKC$.

$m\angle BKR = 180° - 90° - 26°$

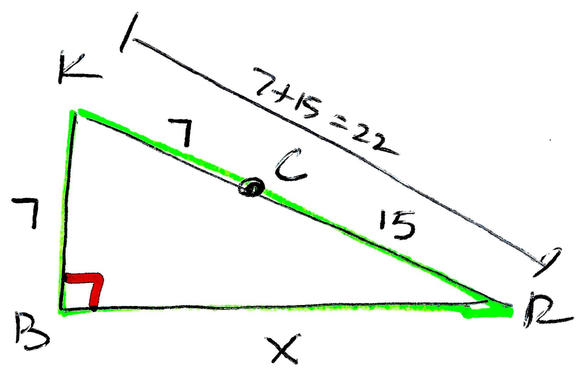
$m\angle BKR = 64°$

$m\angle BKC = m\angle BKR = \boxed{64°}$

b) Find the length of $\overline{BR}$ if the radius of $\odot K = 7$ and $CR = 15$.

radius = $\overline{BK} = \overline{CK}$

$\boxed{BR = 20.86}$



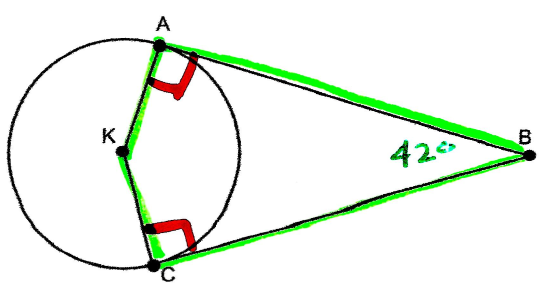
use pythagorean Theorem

$22^2 = x^2 + 7^2$

$\sqrt{x^2} = \sqrt{22^2 - 7^2}$

$x = \underline{20.86}$

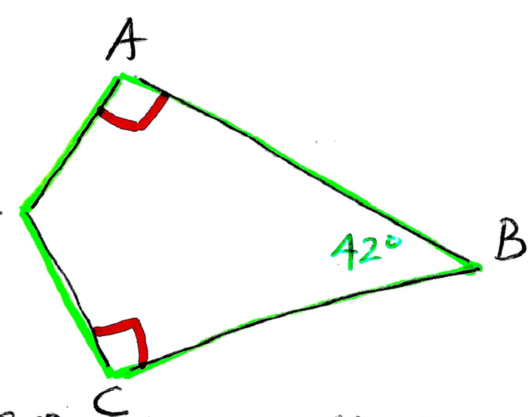
2.



Find the measure of Central Angle $\angle AKC$ if $m\angle ABC = 42°$

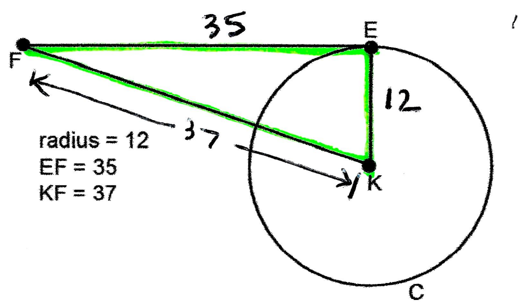
$\boxed{m\angle AKC = 138°}$

Since sum of interior ∠s of a quadrilateral is 360°:



$m\angle AKC = 360° - 90° - 90° - 42° = \underline{138°}$

3. Use the given information to determine if $\overline{EF}$ tangent to $\odot K$. Give a reason.



$\overline{EF}$ is Tangent only if $\angle E$ is a right $\angle$. $\angle E$ is a right $\angle$ only if $\triangle FEK$ is a right $\triangle$. Test the 3 sides with the Pythagorean Theorem.

$$37^2 \stackrel{?}{=} 12^2 + 35^2$$

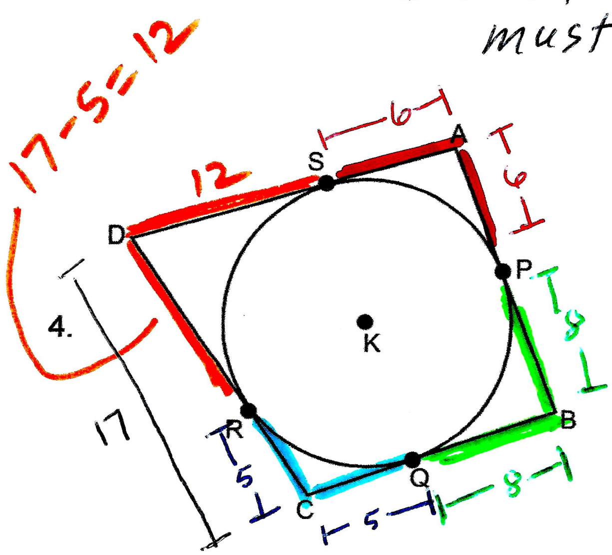
$$1369 \stackrel{?}{=} \underbrace{144 + 1225}$$

$$1369 = 1369 \checkmark$$

Is $\overline{EF}$ tangent? Yes

Why? Because $\triangle FEK$ is a rt $\triangle$ whose rt $\angle$ is $\angle E$. therefore, $\overline{FE} \perp \overline{EK}$ at pt E and if a segment is $\perp$ to a radius at end of radius on the circle the segment must be tangent to the circle.

4.



Find the perimeter of ABCD.

Pts P, Q, R, & S are pts of tangency.

$CD = 17, \underline{SA = 6}, \underline{BP = 8}, CQ = 5$

$\boxed{\text{Perimeter} = 62}$

$CD = 17$

$DA = 12 + 6 = 18$

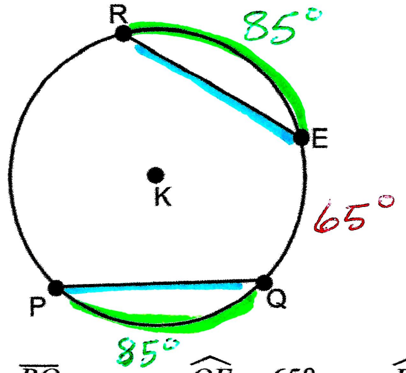
$AB = 6 + 8 = 14$

$BC = 8 + 5 = 13$

$\text{perimeter} = 17 + 18 + 14 + 13$

$= 62$

5.



$\overline{RE} \cong \overline{PQ}$ $\quad m\widehat{QE} = 65°$ $\quad m\widehat{PQ} = 85°$

Since the chords $\overline{RE}$ and $\overline{PQ}$ are $\cong$ the arcs $\widehat{PQ}$ and $\widehat{RE}$ are also $\cong$.

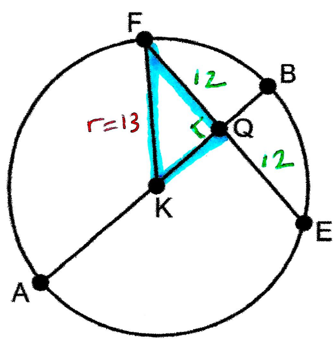
$$m\widehat{PR} = 360° - 85° - 85° - 65°$$

$$m\widehat{PR} = \underline{125°}$$

Find the measure of $\widehat{PR}$.

$\boxed{m\widehat{PR} = 125°}$

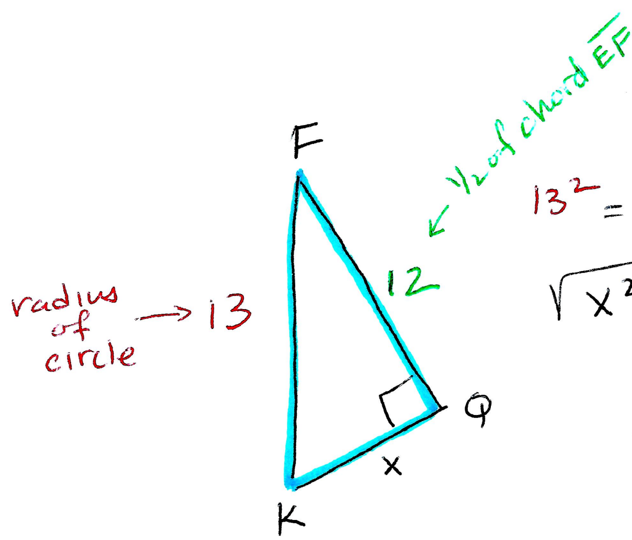
6.



Diameter $\overline{AB}$ is perpendicular to chord $\overline{EF}$ at pt Q. If the radius of the circle is 13 and $EF = 24$, find the length of $\overline{KQ}$.

→ therefore $\overline{AB}$ bisects chord $\overline{EF}$

$\boxed{KQ = 5}$

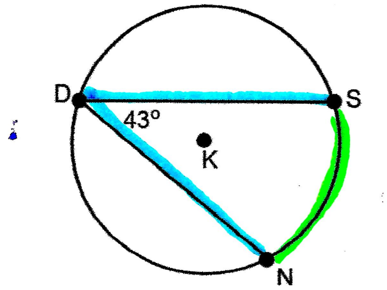


$$13^2 = x^2 + 12^2$$

$$\sqrt{x^2} = \sqrt{13^2 - 12^2}$$

$$\underline{x = KQ = 5}$$

7.



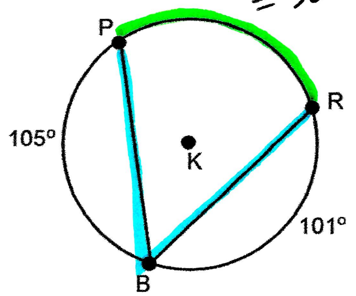
Find the measure of $\widehat{SN}$

$\boxed{m\widehat{SN} = 86°}$

- $\widehat{SN}$ is the intercepted arc for inscribed $\angle SDN$.
- $m\widehat{SN} = 2 \cdot m\angle SDN$
  $= 2(43°)$
  $= \underline{\underline{86°}}$

$= 360 - 105 - 101$

8.

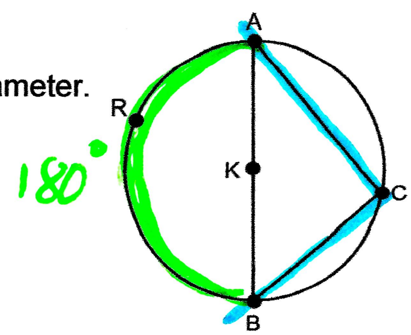


Find the measure of inscribed $\angle PBR$.

$\boxed{m\angle PBR = 77°}$

- $\angle PBR$ is an inscribed angle that intercepts $\widehat{PR}$
- $m\widehat{PR} = 360° - 105° - 101° = 154°$
- $m\angle PBR = \frac{1}{2} \cdot m\widehat{PR} = \frac{1}{2}(154)$
  $= \underline{\underline{77°}}$

9. $\overline{AB}$ is a diameter.



Find the measure of $\angle ACB$

$\boxed{m\angle ACB = 90°}$

- since $\overline{AB}$ IS A DIAMETER $\widehat{ARB}$ is a semicircle $= 180°$
- $\angle ACB$ is an inscribed angle that intercepts $\widehat{ARB}$
- $m\angle ACB = \frac{1}{2} \cdot m\widehat{ARB}$
  $= \frac{1}{2}(180°) = \underline{\underline{90°}}$