9-2 H/W

① $7^2 + AX^2 = 25^2$

$49 + AX^2 = 625$

Triple $AX^2 = 576$

$AX = 24$

② $24^2 + OA^2 = 26^2$

$OA^2 = 100$

Triple $OA = 10$

③ $m\angle AXB = 64°$

④ $m\angle AXB = 84°$

⑤ $90 - 19 = 71$

$71 \times 2 = 142°$

⑥ $PC = 10$

work ⑦ $15^2 + 8^2 = PR^2$

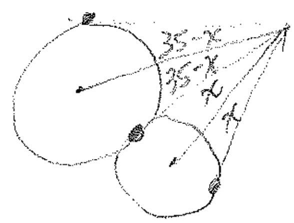
$225 + 64 =$

$17 = PR$

$17 - 8 = PS$

$9 = PS$

W ⑧



$2(35 - x) + 2x$

$70 - 2x + 2x$

70

$m\angle APC = 70$

⑨ $x = 2$ ⑩ $y = 4$ ⑪ $z = 3$ ⑫ $CD = 5$

⑬ $P = 6 + 7 + 6 + 5 = \boxed{24}$

⑭

① $\overline{QB} \perp \overline{QP}$

② $m\angle QPR = 90$ → ③ $\angle QPR$ is Rt. → ④ $\overline{QP} \perp \overline{PR}$

⑥ $\overline{BR} \perp \overline{PR}$

→ ⑤ $\overline{QB} \parallel \overline{PR}$

→ ⑦ $\overline{QP} \parallel \overline{BR}$

⑧ Quad QBRP is ▱

⑨ $\overline{QP} \cong \overline{PR}$

→ ⑩ ▱ QBRP is a rhombus

⑪ Quad QBRP is ▱

⑫ $\angle QPR$ is Rt.

→ ⑬ ▱ QBRP is rectangle

→ ⑭ ▱ QBRP is a square.

(14) REASONS

1. A line tangent the radius of ⊙ is ⊥ to radius.
2. Given
3. Def of right ∡
4. Def of ⊥ lines
5. 2 lines ⊥ to same line are ∥ to each other.
6. same as #1
7. same as #5
8. Def of a ▱
9. Radii of same circle are ≅.
10. If a ▱ w/ 2 consecutive sides ≅ → rhombus.
11. same as #8
12. Same as #3
13. If a ▱ w/ 1 rt. ∡ → a rectangle.
14. If a ▱ is a rhombus & rectangle → a square.

Another proof for #14:

(1) ⊙P inscribed in ABCD → (2) $\overline{AB}$ & $\overline{BC}$ are tangents to ⊙P. → (3) $\overline{AB} \perp \overline{PQ}$, $\overline{BC} \perp \overline{PR}$ → (4) ∡BQP & ∡BRP are right

(5) $m\angle BQP = 90$
$m\angle BRP = 90$

(6) $m\angle QPR = 90$

(7) $m\angle QPR + m\angle PQB + m\angle PRB + m\angle B = 360$

→ (8) $90+90+90+m\angle B = 360$

(9) $m\angle B = 90$

(15)

① $\angle 1 \cong \angle 2 \cong \angle 3$ → ② $m\angle 1 = m\angle 2 = m\angle 3$ → ③ $m\angle 1 + m\angle 2 + m\angle 3 = 360$

→ ④ $m\angle 1 = m\angle 2 = m\angle 3 = 120$ →

⑤ $\overline{AC} \perp \overline{DH}$, $\overline{AB} \perp \overline{EH}$, $\overline{CB} \perp \overline{FH}$ → ⑥ $\angle ADH$, $\angle CDH$, $\angle CFH$, $\angle BFH$, $\angle AEH$, & $\angle BEH$ are each right $\angle$. → ⑦ Each $\angle$ in #6 = 90°.

→ ⑧ $m\angle 1 + m\angle CDH + m\angle CFH + m\angle C = 360$ → ⑨ $m\angle C = 60$

$m\angle 2 + m\angle BFH + m\angle BEH + m\angle B = 360$ → $m\angle B = 60$

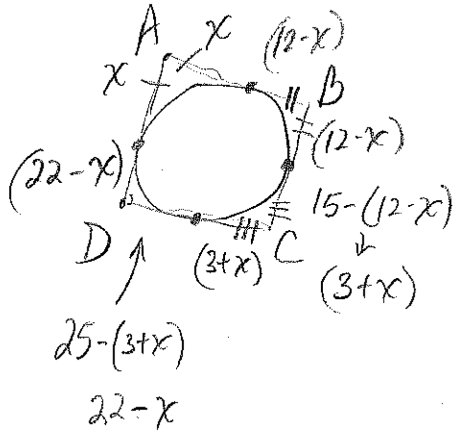
$m\angle 3 + m\angle AEH + m\angle ADH + m\angle A = 360$ → $m\angle A = 60$

→ ⑩ $\triangle ABC$ is equiangular → ⑪ $\triangle ABC$ is equilateral.

Reasons:

① Given
② Def. of $\cong$ $\angle$s
③ Sum of degrees in ⊙ is 360.
④ Division property
⑤ Line tangent to ⊙ is ⊥ radius.
⑥ Def of ⊥ lines.
⑦ Def of right $\angle$.
⑧ Sum of degrees in Quad is 360.
⑨ Subtraction Prop.
⑩ Def of equiangular $\triangle$.
⑪ If a $\triangle$ is equiangular, it is equilateral.

(24)



$AD = x + 22 - x = \boxed{22}$

$AD = 22$

(25) $WX = 19$

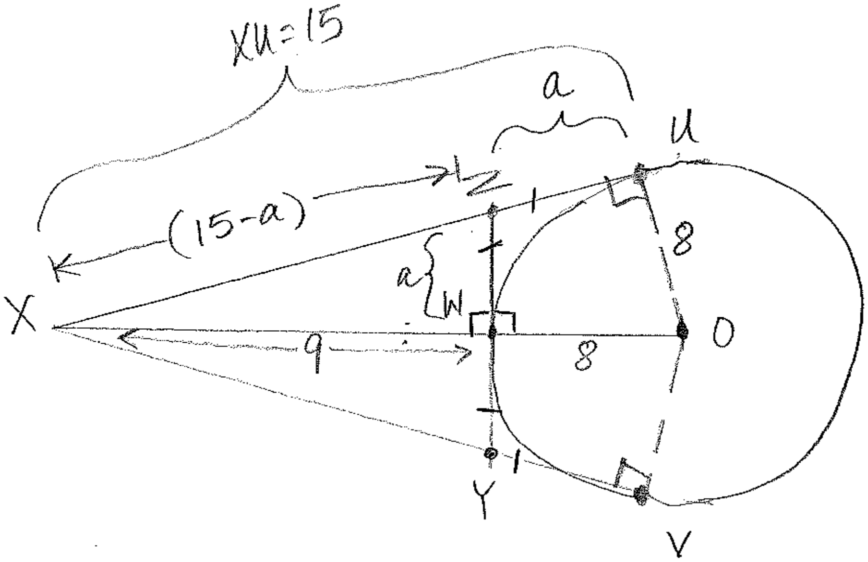
(26)

① $AE + EB = AB$

② $\overline{AD}$, $\overline{AB}$, and $\overline{BC}$ are tangents to $\odot O$. → ③ $\overline{AD} \cong \overline{AE}$, $\overline{BE} \cong \overline{BC}$ → ④ $AD = AE$, $BE = BC$ → ⑤ $AD + BC = AB$

① Segment Add. Postulate
② Given
③ Tangent segments from same ext. pt are ≅.
④ Def of ≅ segments.
⑤ Substitution

(27)

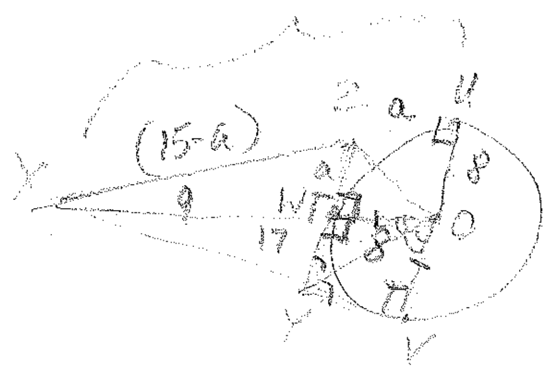


$$9^2 + a^2 = (15-a)^2$$
$$a = 4.8$$

So, $WZ = 4.8$, $XZ = 10.2$, $YZ = 9.6$

$$XZ + YZ + XY$$
$$10.2 + 9.6 + 10.2 = 30$$

#27



$$\begin{array}{r} 17 \\ \times\, 17 \\ \hline 119 \\ 17 \\ \hline 289 \end{array}$$

$\triangle$

$17^2 = 8^2 + XU^2$

$$\begin{array}{r} 289 \\ -\,64 \\ \hline 225 \end{array} = XU^2$$

$15 = XU$

$\frac{17}{8} = \frac{15-a}{a}$

$17a = 8(15) - 8a$

$25a = 8(\cancel{15})3$ / $\cancel{25}\,5$

$a = \frac{24}{5} = 4.8$

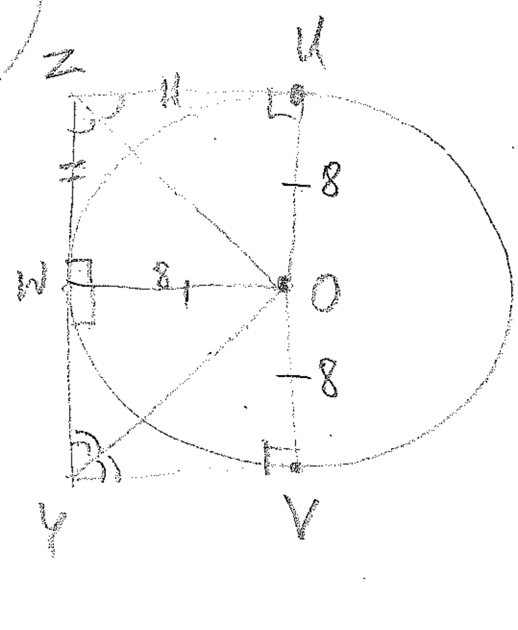
$$\begin{array}{r} 15-4 \\ 4.8 \\ \hline 10.2 \end{array}$$

$XZ = 10.2$

$YZ = 2(4.8) = 9.6$

$XY = 10.2$

Prove $WZ = WY$.



Ezra said:

Since $XZ + ZW = 15$

and $XY + YW = 15$.

These 4 parts add up to 30.