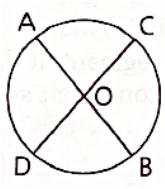
 Name: _____

2.5 – Bisectors, Perpendicularity, & Vertical Angles

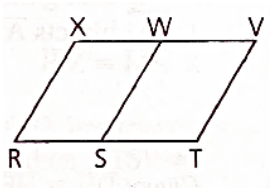
Past due on: _____ Period: _____

Based on the information given, name the congruent segments or angles using proper geometric/ symbolic notation.

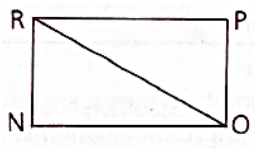
1. O is the midpt of $\overline{CD}$



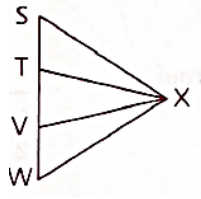
2. $\overline{SW}$ bisects $\overline{XV}$



3. $\overrightarrow{RO}$ bisects $\angle NRP$

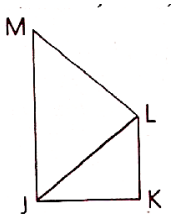


4. $\overrightarrow{XT}$ & $\overrightarrow{XV}$ trisect $\angle SXW$

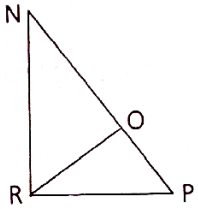


In each of the following, name the angles that can be proven to be right angles.

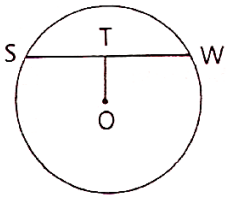
5. Given: $\overline{JM} \perp \overline{JK}$



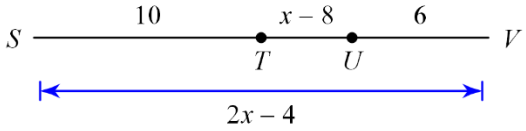
6. Given: $\overrightarrow{RO} \perp \overrightarrow{PN}$



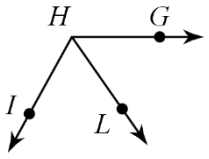
7. Given: $\overline{OT} \perp \overline{SW}$



8. Use the Segment Addition Postulate to set up and solve an equation to find the value of x. Is T the midpoint of $\overline{SV}$? Explain your reasoning using the definition of midpoint.



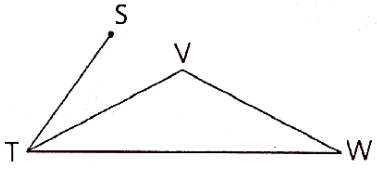
9. Given: $m\angle GHI = 9x + 11$, $m\angle GHL = 55$, and $m\angle LHI = 6x - 8$. Use the Angle Addition Postulate to set up and solve an equation to find the value of x. Does $\overrightarrow{HL}$ bisect $\angle GHI$? Explain your reasoning using the definition of bisects.



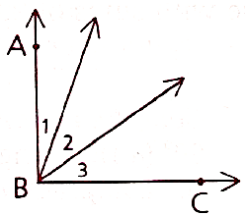
10. Given: $\angle W \cong \angle STV$ and $\overrightarrow{TV}$ bisects $\angle STW$

   a. What can you conclude from the given information?

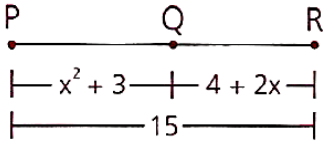
   b. If $m\angle W = 2x - 5$ and $m\angle VTW = x + 15$, find $m\angle STW$.



11. Given: $\overleftrightarrow{AB} \perp \overleftrightarrow{BC}$ and angles 1, 2, and 3 are in the ratio 1:2:3. Find the measure of each angle.



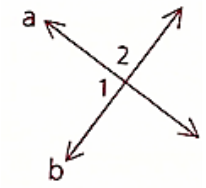
12. Use the Segment Addition Postulate to set up and solve a quadratic equation to find the value of x (that makes sense). Is Q the midpoint of $\overline{PR}$? Explain your reasoning using the definition of midpoint.



Two-Column Proof Problems:

13. Given: $a \perp b$

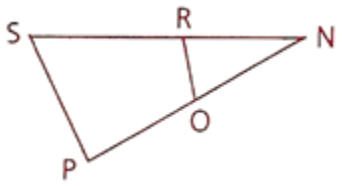
    Prove: $\angle 1 \cong \angle 2$



STATEMENTS	REASONS

14. Given: O is the midpoint of $\overline{NP}$
    $\overline{RN} \cong \overline{PO}$

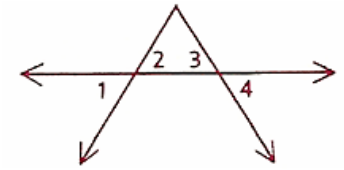
    Prove: $\overline{RN} \cong \overline{NO}$



STATEMENTS	REASONS

15. Given: $\angle 1 \cong \angle 4$

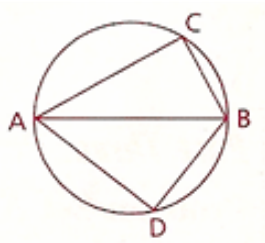
Prove: $\angle 2 \cong \angle 3$



STATEMENTS	REASONS

16. Given: $m\angle ACB = 90$
$\overline{AD} \perp \overline{BD}$

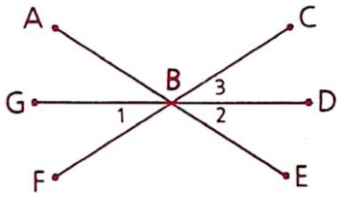
Prove: $\angle ACB \cong \angle D$



STATEMENTS	REASONS

17. Given: $\overleftrightarrow{GD}$ bisects $\angle CBE$

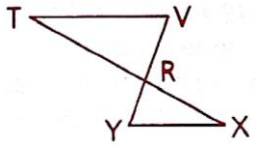
Prove: $\angle 1 \cong \angle 2$



STATEMENTS	REASONS

18. Given: $\angle V \cong \angle YRX$
$\angle Y \cong \angle TRV$

Prove: $\angle V \cong \angle Y$



STATEMENTS	REASONS