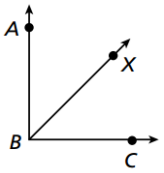
WS Geometric Proof 2 Name:_____

1. Write a justification for each step. Given: $m\angle A = 60°$. $m\angle B = 2m\angle A$.
   Prove $\angle A$ and $\angle B$ are supplementary.

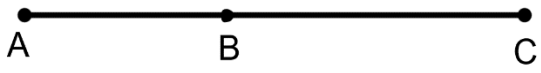
Statements	Reasons
$m\angle A = 60°, \quad m\angle B = 2m\angle A$	1.
$m\angle B = 2(60)$	2.
$m\angle B = 120$	3.
$m\angle A + m\angle B = 60 + 120$	4.Addition POE
$m\angle A + m\angle B = 180$	5.
$\angle A$ and $\angle B$ are supplementary	6.

2. Write a justification for each step. Given: $\overrightarrow{BX}$ bisects $\angle ABC$. $m\angle XBC = 45°$.
   Prove: $\angle ABC$ is a right angle.



Statement	Reason
$\overrightarrow{BX}$ bisects $\angle ABC$	1.
$\angle ABX \cong \angle XBC$	2.
$m\angle ABX = m\angle XBC$	3.
$m\angle XBC = 45$	4.
$m\angle ABX = 45$	5.
$m\angle ABX + m\angle XBC = m\angle ABC$	6.
$45 + 45 = m\angle ABC$	7.
$90 = m\angle ABC$	8.
$\angle ABC$ is a right angle	9.

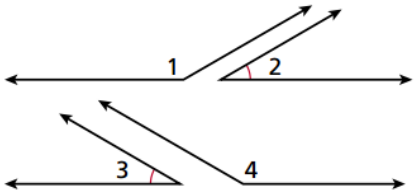
3. Given: AB = 2x, BC =5, AC = 9
   Prove: x = 2



Statement	**Reason**

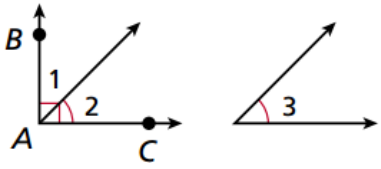
WS Geometric Proof 2 Name:_____

4. **Given:** $\angle 1$ and $\angle 2$ are supplementary, and $\angle 3$ and $\angle 4$ are supplementary.
$\angle 2 \cong \angle 3$
Prove: $\angle 1 \cong \angle 4$



Statement	Reason
$\angle 1$ and $\angle 2$ are supplementary $\angle 3$ and $\angle 4$ are supplementary	Given
a.	Definition of Supplementary Angles
$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	b.
$\angle 2 \cong \angle 3$	Given
$m\angle 2 = m\angle 3$	Definition of Congruence
$m\angle 1 + m\angle 2 = m\angle 2 + m\angle 4$	c.
$m\angle 1 = m\angle 4$	d.
$\angle 1 \cong \angle 4$	e.

5. Given: $\angle BAC$ is a right angle. $\angle 2 \cong \angle 3$
Prove: $\angle 1$ and $\angle 3$ are complementary



Statement	Reason
$\angle BAC$ is a right angle	Given
$m\angle BAC = 90$	a.
b.	Angle Addition Postulate (Look at the picture)
$m\angle 1 + m\angle 2 = 90$	Substitution
$\angle 2 \cong \angle 3$	Given
c.	Definition of Congruent Angles
$m\angle 1 + m\angle 3 = 90$	d.
e.	Definition of Complementary Angles

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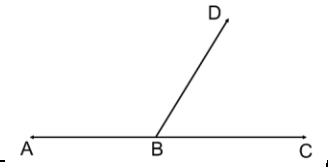
6. Given: $\angle A$ and $\angle B$ are complementary angles. $m\angle A = 65°$
   Prove: $m\angle B = 25°$

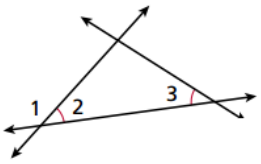
Statement	Reason

7. Given: $m\angle ABD = 120°$
   Prove: $m\angle DBC = 60°$



Statement	**Reason**

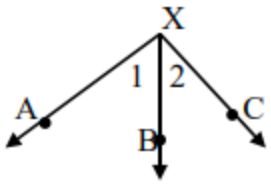
8. Given: $\angle 2 \cong \angle 3$
   Prove: $\angle 1$ *and* $\angle 3$ are supplementary



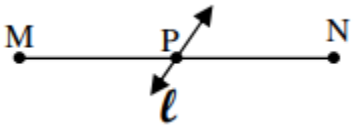
Statement	Reason
$\angle 2 \cong \angle 3$	Given
$m\angle 2 = m\angle 3$	a.
b.	Linear Pair Postulate
$m\angle 1 + m\angle 2 = 180$	c.
$m\angle 1 + m\angle 3 = 180$	d.
e.	Definition of Supplementary Angles

WS Geometric Proof 2 Name:_____

9. Given: $\angle 1 \; and \; \angle 2$ are complementary.
   Prove: $\overrightarrow{XA} \perp \overrightarrow{XC}$



10. Given: $line \; l$ bisects MN at P
    Prove: $MP = PN$



11. Given: $\overline{RT} \cong \overline{SU}$
    Prove: $RS = TU$