

Name: _____

Geometry

Date: _____

Period: _____

Chapter 2: Logic & Proof

Proof Review

Write the letter of the property, definition, or postulate that justifies each statement.

- _____ 1. $QR = QR$
- _____ 2. If $AB = CD$, then $AB + EF = CD + EF$
- _____ 3. If $RS + TU = XY$ and $TU = WV$, then $RS + WV = XY$
- _____ 4. $JK = LM$, then $\overline{JK} \cong \overline{LM}$
- _____ 5. If $\overline{AB} \cong \overline{BC}$ and $\overline{BC} \cong \overline{CE}$, then $\overline{AB} \cong \overline{CE}$
- _____ 6. If $2XY = YZ$, then $XY = \frac{1}{2}YZ$
- _____ 7. If Q is between P and R, then $PQ + QR = PR$
- _____ 8. If $2KL = KL + MN$, then $KL = MN$

- A. Addition Property of Equality
- B. Subtraction Property of Equality
- C. Multiplication Property of Equality
- D. Division Property of Equality
- E. Substitution Property
- F. Reflexive Property
- G. Symmetric Property
- H. Transitive property
- I. Definition of Congruence
- J. Definition of Midpoint
- K. Segment Addition Postulate

Write the letter of the definition, theorem, or postulate that justifies each statement.

- _____ 9. If $\angle A$ is a right angle, then $m\angle A = 90^\circ$
- _____ 10. If $\overline{AX} \perp \overline{BY}$, then they form right angles.
- _____ 11. If $m\angle P = m\angle Q = 90^\circ$, then $\angle P$ and $\angle Q$ are complementary
- _____ 12. If $m\angle J = m\angle K$, then $\angle J \cong \angle K$
- _____ 13. If $\angle J$ and $\angle K$ are vertical angles, then $\angle J \cong \angle K$
- _____ 14. If $\angle W$ and $\angle X$ are supplementary angles, then $m\angle W + m\angle X = 180^\circ$.
- _____ 15. If $\angle A$ and $\angle B$ are a linear pair, then $\angle A$ and $\angle B$ are supplementary

- A. Definition of Congruence
- B. Definition of Angle Bisector
- C. Definition of Complementary
- D. Definition of Supplementary
- E. Definition of Perpendicular
- F. Definition of Right Angle
- G. All Right Angles Theorem
- H. Angle Addition Postulate
- I. Vertical Angles Theorem
- J. Linear Pair Postulate

Complete the following proofs by filling in the missing statements and reasons.

Given: $28 - 6x = 2x - 84$

Prove: $x = 14$

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.

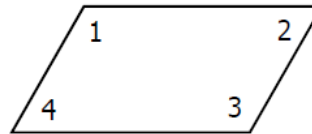
Given: $-7(x - 4) + 2x = -2(x - 5)$

Prove: $x = 6$

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

Given: $\angle 1$ and $\angle 4$ are supplementary; $\angle 2 \cong \angle 4$

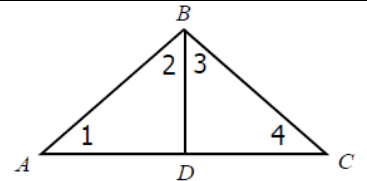
Prove: $\angle 1$ and $\angle 2$ are supplementary



Statements	Reasons
1. $\angle 1$ and $\angle 4$ are supplementary	1.
2. $m\angle 1 + m\angle 4 = 180^\circ$	2.
3. $\angle 2 \cong \angle 4$	3.
4. $m\angle 2 = m\angle 4$	4.
5. $m\angle 1 + m\angle 2 = 180^\circ$	5.
6. $\angle 1$ and $\angle 2$ are supplementary	6.

Given: \overline{DB} bisects $\angle ABC$; $\angle 1$ and $\angle 2$ are complementary; $\angle 3$ and $\angle 4$ are complementary

Prove: $\angle 1 \cong \angle 4$



Statements	Reasons
1. \overline{DB} bisects $\angle ABC$	1.
2. $\angle 2 \cong \angle 3$	2.
3. $m\angle 2 = m\angle 3$	3.
4. $\angle 1$ and $\angle 2$ are complementary	4.
5. $m\angle 1 + m\angle 2 = 90$	5.
6. $\angle 3$ and $\angle 4$ are complementary	6.
7. $m\angle 3 + m\angle 4 = 90$	7.
8. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	8.
9. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 4$	9.
10. $m\angle 1 = m\angle 4$	10.
11. $\angle 1 \cong \angle 4$	11.