Name _____

Date _____ Period _____

Geometric Proofs

The process of proving geometrical statements through geometric definitions, postulates and theorems.

Deductive Reasoning: Law of Syllogism

if $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true.

Conditional Statement:

If I study for two hours,
then I will make an A.

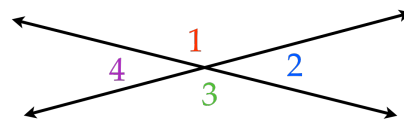Conditional Statement:

If I make an A,
then I will pass the class.

Law of Syllogism

Deductive Reasoning: Law of Syllogism

if $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true.

Given: $\angle 1$ and $\angle 3$ are vertical angles.
Prove: $m\angle 1 = m\angle 3$

Vertical Angle Theorem

If two angles are vert. $\angle$s,
then the two $\angle$s are $\cong$.

Definition of $\cong$ $\angle$s

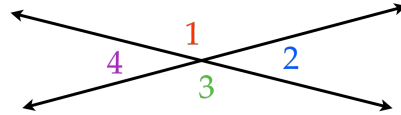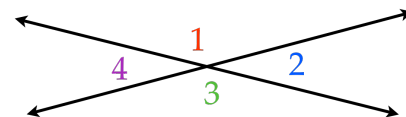If the two $\angle$s are $\cong$,
then their measures are equal.

Law of Syllogism

Deductive Reasoning: Law of Syllogism

if $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true.

Given: ∠1 and ∠3 are vertical angles.
Prove: $m\angle1 = m\angle3$

Statements	Reasons (definitions, theorems and postulates)

Deductive Reasoning: Law of Syllogism

if $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true.

Given: ∠1 and ∠2 form a linear pair
Prove: ∠1 and ∠2 are supplementary

Linear Pair Postulate

If two angles form linear pair,
then their measures add to equal 180°.

Definition of Supplementary ∠s

If the measure of two angles add to equal 180°,
then the two angles are supplementary.
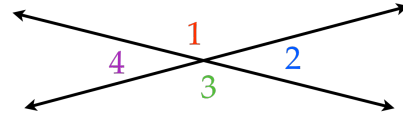
Law of Syllogism

Deductive Reasoning: Law of Syllogism

if $p \rightarrow q$ and $q \rightarrow r$ are true conditionals, then $p \rightarrow r$ is also true.

Given: ∠1 and ∠2 form a linear pair
Prove: ∠1 and ∠2 are supplementary
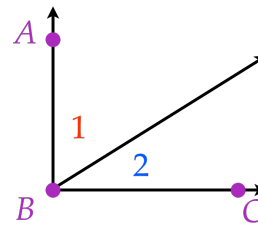
Statements	Reasons (definitions, theorems and postulates)

Given: ∠*ABC* is a right angle.
Prove: ∠1 and ∠2 are complementary.

Statements	Reasons (definitions, theorems and postulates)

Given: $WY = XZ$

Prove: $\overline{WX} \cong \overline{YZ}$

Statements	Reasons (definitions, theorems and postulates)