

Writing Proofs

Jonathan R. Bacolod

Sauyo High School

What is a Proof?

Proof: a form of logical reasoning in which each statement is organized and backed up by the reasons

What are the Ways of Writing Proofs?

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1. Flow-Chart Proof

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2. Two-Column Proof

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3. Paragraph Form Proof

Definitions of Geometric Terms

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6. Complementary Angles: If $\angle A$ and $\angle B$ are complementary angles, then $m\angle A + m\angle B = 90^\circ$.

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10. Definition of Congruent Angles: If $\angle A \cong \angle B$, then $m\angle A = m\angle B$.

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4. Division Property of Equality: If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

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3. Transitive Property: If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

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10. If $\angle X \cong \angle Y$, then $\angle Y \cong \angle X$.
 - ▶ Symmetric Property

What is a Postulate?

Postulate: a statement that is accepted without proof

Some Postulates in Geometry

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2. Segment Addition Postulate: If B lies on \overline{AC} , then $AC = AB + BC$.
3. Angle Addition Postulate: If B is in the interior of $\angle AOC$, then $m\angle AOC = m\angle AOB + m\angle BOC$.

What is a Theorem?

Theorem: a statement that is accepted after it is proved deductively

Some Theorems in Geometry

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▶ Linear Pair Postulate

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2. If $\angle M$ and $\angle N$ form a linear pair, then $\angle M$ and $\angle N$ are supplementary.
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3. If $m\angle J + m\angle K = 90^\circ$ and $m\angle K + m\angle L = 90^\circ$, then $m\angle J \cong m\angle L$.

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4. If Y lies on \overline{XZ} , then $XZ = XY + YZ$.
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5. If $m\angle D + m\angle E = 180^\circ$ and $m\angle E + m\angle F = 180^\circ$, then $m\angle D \cong m\angle F$.

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Thank you for watching.