

2.12 Analysis of a Proof

Objective: Students will write simple triangle congruence proofs.

Launch

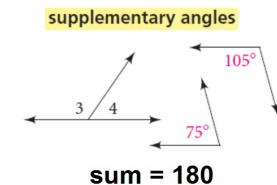
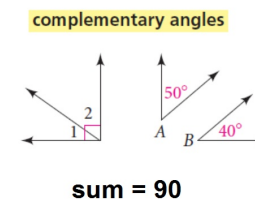
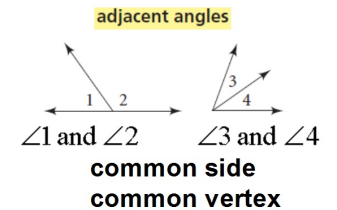
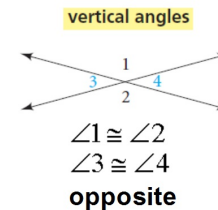
What are some of the things you struggle with when you are writing a proof?

Here are 3 properties of congruence that we have been using in proof writing. You can now use the name of the property instead of writing "Any segment is congruent to itself"

COPY

Properties of Congruence

Reflexive Property	$\overline{AB} \cong \overline{AB}$ $\angle A \cong \angle A$
Symmetric Property	If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$. If $\angle A \cong \angle B$, then $\angle B \cong \angle A$.
Transitive Property	If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$. If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

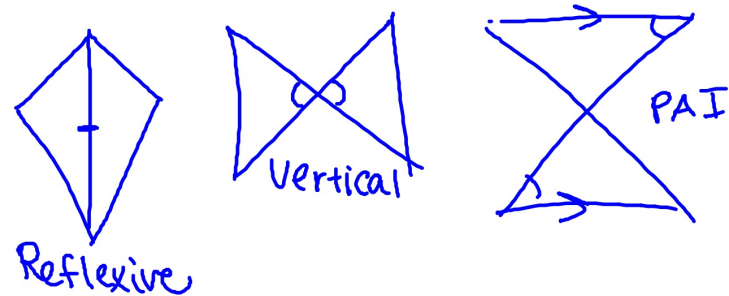


Three techniques for analyzing proofs:

- Visual scan ✓
- Flowchart
- Reverse List

The Visual Scan

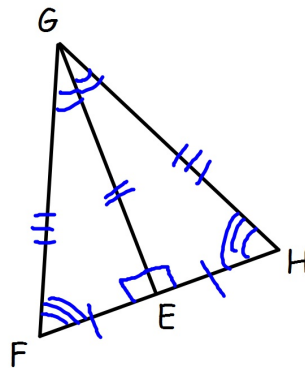
- Examine the figures in the proof
- Mark a sketch of the figures with the known congruent parts
- Determine what other parts you can conclude are congruent



The Visual Scan (We do together)

Given: E is the midpoint of \overline{FH}
and $\overline{EG} \perp \overline{FH}$

Prove: $\overline{HG} \cong \overline{FG}$

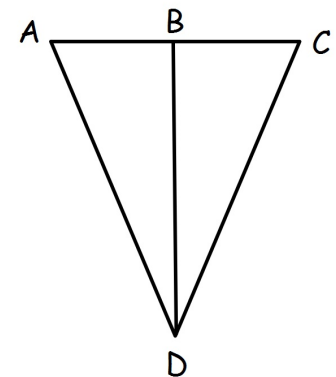


Statements	Reasons
E is the midpoint of \overline{FH}	Given
$\overline{EG} \perp \overline{FH}$	Given
$\overline{FE} \cong \overline{EH}$	def. of midpoint
$\overline{EG} \cong \overline{EG}$	Reflexive
$\angle FEG \cong \angle HEG$	def. of perpendicular
$\triangle FEG \cong \triangle HEG$	SAS
$\overline{FG} \cong \overline{HG}$	CPCTC

The Visual Scan (For you to do)

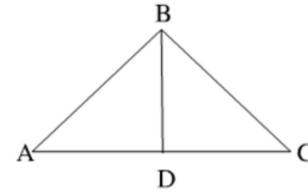
Given: $\overline{AD} \cong \overline{CD}$, and \overline{DB}
bisects $\angle ADC$

Prove: $\angle A \cong \angle C$



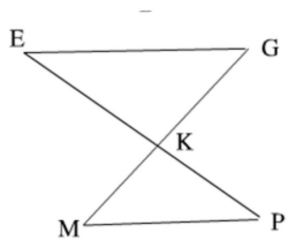
Statements	Reasons

Homework: Triangle Congruence Proof Worksheet



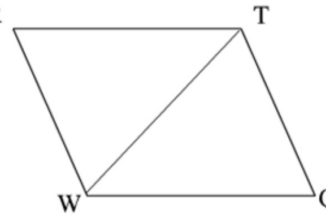
Given: $\overline{BD} \perp \overline{AC}$
D is the midpoint of \overline{AC}
Prove: $\angle A \cong \angle C$

2.



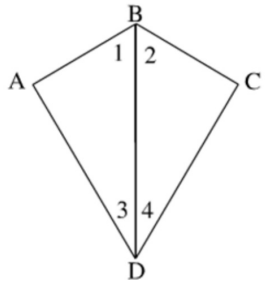
Given: $\angle E \cong \angle P$
K is the midpoint of \overline{EP}
Prove: $\overline{EG} \cong \overline{MP}$

3.



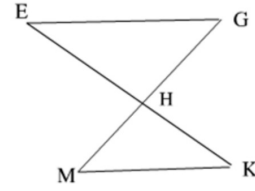
Given: $\overline{RT} \cong \overline{WQ}$
 $\angle R \cong \angle Q$
Prove: $\overline{RW} \cong \overline{TQ}$

4.



Given: $\angle A \cong \angle C$
 $\angle 1 \cong \angle 2$
Prove: \overline{BD} bisects $\angle ADC$

5.



Given: H is the midpoint of \overline{GM}
H is the midpoint of \overline{EK}
Prove: $\overline{EG} \parallel \overline{MK}$