

## Geometric Proof

A geometric proof is a method of determining whether a statement is true or false with the use of logic and facts. It is comprised of a sequence of statements with reasoning that generally follow a logical progression. This needs to be a systematic process:

1. What do I need to prove? Start by stating the definition to give you a map of what you need to accomplish.
2. Give EVIDENCE to support what you need to accomplish. Often times this will require algebraic support. (may need to do some calculations!)
3. Interpret the evidence. What does it tell you? Be sure to explain how you know.
4. State your conclusion. Can you prove it or not? Again, give reasoning to support your statement. (may seem repetitive!)

A proof is a logical argument that convinces your audience that what you are saying is TRUE.

In order to prove:

Evidence Needed (find)

Look For...

Parallel Lines

ex:  $m_{\overline{AB}} = \frac{3}{4}$   $m_{\overline{CD}} = \frac{3}{4}$

$\overline{AB} \parallel \overline{CD}$  because the slopes are EQUAL.

Perpendicular Lines

ex:  $m_{\overline{AB}} = \frac{5}{3}$   $m_{\overline{AC}} = -\frac{3}{5}$

$\overline{AB} \perp \overline{AC}$  because slopes are opposite reciprocals.

Congruent Segments

lengths  
(Pythagorean Thm)

Right Angle(s)

(see  $\perp$  above!)

$\angle A$  is a right  $\angle$  because  $\perp$  lines intersect @  $90^\circ$ .

slopes

① show OPPOSITE RECIPROCAL slopes to prove lines are PERPENDICULAR. ② Then, by definition,  $\perp$  lines form rt.  $\angle$ s

BE SPECIFIC when stating your interpretations.  
What sides? What segments? What angle(s)?