Indirect proof- A way to prove a statement true by assuming its conclusion is false and showing that this assumption leads to a contradiction of the given, definition, theorem or postulate known to be true.

Steps for writing an indirect proof:

1.

Assume the _____ is _____ aka "opposite"

2.

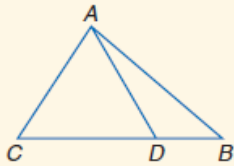Show work or write explanations which lead to a _____ of the _____ info, theorem, definition, or postulate.

3.

State that the assumption must be _____ and the original _____ must be true.

Example 1

Write an indirect proof.

Given: $m\angle ADC \neq m\angle ADB$

Prove: $\overline{AD}$ is not an altitude of $\triangle ABC$.

Step 1:

Step 2:

Step 3:

Example 2

Write an indirect proof.

Given:

Prove: A triangle can contain only one obtuse angle.

Example 3

Write an indirect proof.

Given: △*JKL* with side lengths 5, 7, and 8 as shown

Prove: $m\angle K < m\angle L$