M-G Geometry Week 6 10/17

Conditional Statements "If... then"

hypothesis

If you call your mom "chunky", then you will die a painful death. conclusion

Good definition – must be true forwards and backwards.

Converse – switch the order of the hypothesis and conclusion.

If you died a painful death, then you called your mom "chunky". False

counterexample: Ben's weekend.

hypothesis

If you watch a Marvel movie, then you should stay for the end credits. conclusion

Converse:

If you stay for the end credits, then you watched a Marvel movie.

False

$\boxed{\text{If}}$ you are in the presence of Nate, hypothesis

$\boxed{\text{then}}$ you are in the presence of the greatest man alive. conclusion

Converse: If you are in the presence of the greatest man alive, then you are in the presence of Nate.

(probably not true) True!

Biconditional Statement → a good definition

no "If" → You are in the presence of the "greatest" "man" "alive" $\boxed{\text{if, and only if,}}$ you are in the presence of Nate. ← no "then"

Identify hypothesis and conclusion.

Write converse.

If the converse is true, write the biconditional statement (if, and only if)

1.) If you are eating an orange, then you are eating something disgusting.

hypothesis

conclusion

Converse

If you are eating something disgusting, then you are eating an orange. False

2.) If you are in Geometry class, then you are looking at Nate's hideous face.

hypothesis

conclusion

Converse: If you are looking at Nate's hideous face, then you are in Geometry class. False

3.) If it is October 31st, then it is Halloween.

hypothesis

conclusion

Converse: If it is Halloween, then it is Oct 31st

Biconditional statement

It is Halloween if, and only if, it is Oct 31st.

1.) If $n = 8$, then $n^2 = 64$

Converse If $n^2 = 64$, then $n = 8$ False

Counter example $n = -8$

2.) If you are in the capitol of NC, then you are in Raleigh.

<u>Converse</u>: If you are in Raleigh, then you are in the capitol of NC <u>true</u>

Biconditional Statement

You are in Raleigh if, and only if, you are in the capitol of NC

If you make fun of Nate, then he will be sad.

If Nate is sad, then he will eat eight dozen donuts.

Law of Syllogism (Transitive Property)

$A \rightarrow B \quad B \rightarrow C \quad A \rightarrow C$

If you make fun of Nate, then he will eat eight dozen donuts.

If you eat shrimp, then you may eat the "vein".

If you eat the "vein", then you are eating poop.

Law of Syllogism

If you eat shrimp, then you are eating poop.

Law of Detachment

If you are a math teacher, then you are a sad... sad.... so sad lonely person

hypothesis

conclusion

If you're given the hypothesis, then you can return the conclusion

If you're given the conclusion, then you cannot return the hypothesis.

Karianne is a math teacher.

She is a sad, lonely person.

Dalton is a sad, lonely person.

no conclusion

If you are a twinkie,
then Madelyn's mom loves you more than her.

- Alex is a twinkie
  Madelyn's mom loves Alex more than Madelyn.
- Madelyn's mom loves Haley more than Madelyn.
  no conclusion