Conditional Statements   "If... then"

$\overbrace{\text{If you call your mom "chunky,"}}^{\text{hypothesis}}$ then $\underbrace{\text{you will die a painful death.}}_{\text{conclusion}}$

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

$\overbrace{\text{If you watch a Marvel movie,}}^{\text{hypothesis}}$ then $\underbrace{\text{you should stay for the end credits.}}_{\text{conclusion}}$

Converse: If you stayed for the end credits, then you watched a Marvel movie.

false

(**If**) you are in the presence of *hypothesis* Nate,

(**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.   (True!)

Bioconditional statement   A good definition

{ You are in the presence of the greatest man alive [**if, and only if,**] you are in the presence of Nate.

probably not true

Identify hypothesis and conclusion.

Write the converse

If the converse is true, write the biconditional statement

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

Converse: If you are eating something disgusting, then you are eating an orange. false

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

Converse: If it is Halloween, then it is October 31st. True

Biconditional Statement:
It is Halloween if, and only if, it is October 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.

Converse: If you are in Raleigh, then you are in the capitol of NC.
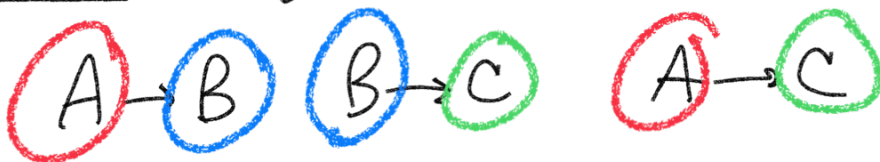
Biconditional Statement   (True)

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

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

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

Law of Syllogism (Transitive Property)

(A→B) (B→C) (A→C)

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

If you have incredible fashion sense, then you want ... no, need .... TOMG merch.

If you want TOMG merch, then you should visit the TOMG website.

Law of Syllogism

If you have incredible fashion sense, then you should visit the TOMG website.

Law of Detachment

If you are a math teacher, *hyp*

{ then you are a sad ... sad .... so sad ....

{ lonely person.   *conclusion*

If you are given the hypothesis, then you must return the conclusion.

If you are given the conclusion, then you cannot return the hypothesis.

Valentina is a math teacher

she is a sad, lonely person

Josh is a sad, lonely person
no conclusion

If you ride a bicycle on the road,
then Charlie will try to kill you

— Lil Nug was riding his tricycle on the
road
Conclusion: Charlie attempts murder

— Charlie tried to kill Brenden
Conclusion: no conclusion