Ch 1.8 - Deductive Structure

Objectives:

-recognize conditional statements

- recognize the negation of a conditional statement

- recognize the converse, the inverse and the contrapositive of a statement

-Use the chain rule to draw conclusions

Agenda:

1) Take out HW to be checked
2) DO NOW
3) Logical Statements
4) Check in with Proofs - Peer Graded

HW: *p. 47 #1- 9*

Do Now:

Given the declarative statement "Two angles are both straight and congruent" identify the following:

Hypothesis (p): _____

Conclusion (q) :_____

Conditional Statement (p ⇒ q):_____

_____

Converse Statement (q ⇒ p): _____

_____

Is the converse a true statement? _____(yes or no)

If "no", provide a counter example: _____

_____

Statements of Logic

1) Negation: _____

_____

Notation: _____

ex. p = It is raining. ~p = _____

Statement / Symbol	Example	T/F
Conditional / $p \Rightarrow q$	If you live in Newton, MA, then you live in Massachusetts.	T
Converse		
	(If False) Counter Example	
Inverse		
	(If False) Counter Example	
Contrapositive		
	(If False) Counter Example	

Theorem: If a conditional statement is true, then the contrapositve of the statement is also true.

(If p then q $\Leftrightarrow$ If ~q, then ~p)

Chain of Reasoning: If p⇒q and q⇒r, then _____

Ex. Consider the two statements:

If the team scores enough points, they will win the game.
(Notation _____)

And if they will win the game, the team goes to regionals.
(Notation _____)

And if the team goes to regionals, they will miss a day of school!
(Notation _____)

What can we conclude?

_____

_____

Lets revisit the "DO NOW" from yesterday and complete the following:

Given the declarative statement "Two straight angles are congruent" identify the following:

INVERSE Statement (p ⇒ q): _____

_____

CONTRAPOSTIVE Statement (q ⇒ p): _____

_____

Score_____/5 Name_____

Graded by _____

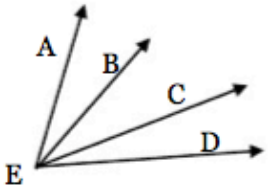
1. Given: $\overline{FL} \cong \overline{AT}$
Prove: $\overline{FA} \cong \overline{LT}$

STATEMENTS	REASONS
1. _____	1. Given
2. $\overline{LA} \cong \overline{LA}$	2. _____
3. _____	3. Addition Prop of Equal.
4. _____	4. Segment Addition Property
5. $\overline{FA} \cong \overline{LT}$	5. _____

Score_____/5 Name_____

Graded by _____

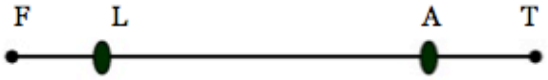
2. Given: $\angle AEB \cong \angle CED$
Prove: $\angle AEC \cong \angle BED$



STATEMENTS	REASONS
1. _____	1. Given
2. $\angle BEC \cong \angle BEC$	2. _____
3. _____	3. Addition Prop of Equal.
4. _____	4. Angle Addition Property
5. $\angle AEC \cong \angle BED$	5. _____

Score_____/5 Name_____
Graded by _____

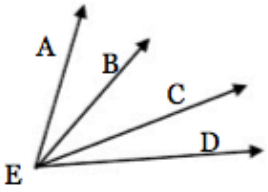
1. Given: $\overline{FL} \cong \overline{AT}$
Prove: $\overline{FA} \cong \overline{LT}$



STATEMENTS	REASONS
1. $\overline{FL} \cong \overline{AT}$	1. Given
2. $\overline{LA} \cong \overline{LA}$	2. reflexive POE
3. $\overline{LA}+\overline{FL} \cong \overline{AT}+\overline{LA}$	3. Addition Prop of Equal.
4. $\overline{LA}+\overline{FL}=\overline{FA}$, $\overline{LA}+\overline{AT}=\overline{LT}$	4. Segment Addition Property
5. $\overline{FA} \cong \overline{LT}$	5. Transitive POE

Score_____/5 Name_____
Graded by _____

2. Given: $\angle AEB \cong \angle CED$
Prove: $\angle AEC \cong \angle BED$



STATEMENTS	REASONS
1. $\angle AEB \cong \angle CED$	1. Given
2. $\angle BEC \cong \angle BEC$	2. reflexive POE
3. $\angle AEB+\angle BEC \cong \angle CED+\angle BEC$	3. Addition Prop of Equal.
4. $\angle AEB+\angle BEC \cong \angle AEC$ $\angle CED+\angle BEC \cong \angle BED$	4. Angle Addition Property
5. $\angle AEC \cong \angle BED$	5. Transitive POE