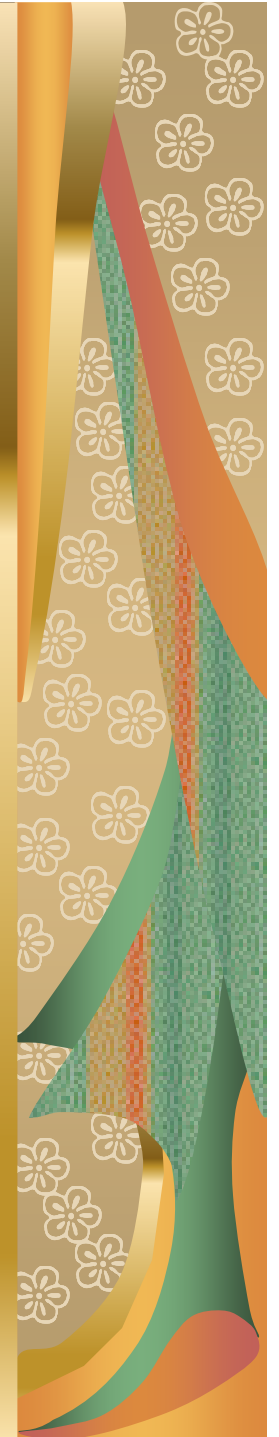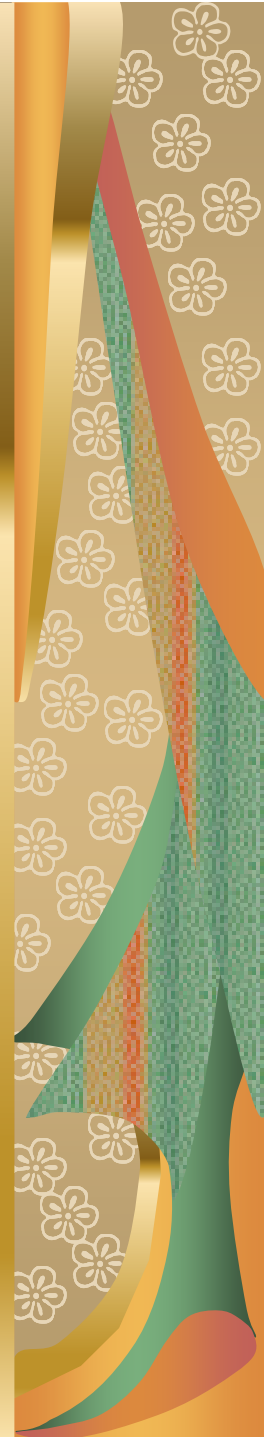# Lesson 2-1 and 6-2

If-Then and Converse Statements

Conditional Statements

- Also called If-then statements

- A logic statement that begins with a hypothesis (<u>after</u> the word *if*) and ends with a conclusion (<u>after</u> the word *then*)

- Given the statement *If p, then q*;

  p would be the hypothesis and *q* would be the conclusion
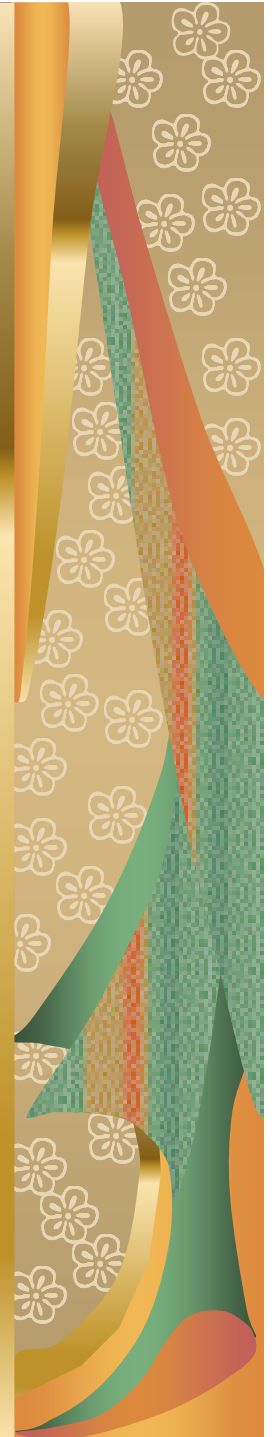
Example 1:

- Read the following statements and decide which words are part of the hypothesis and which are part of the conclusion
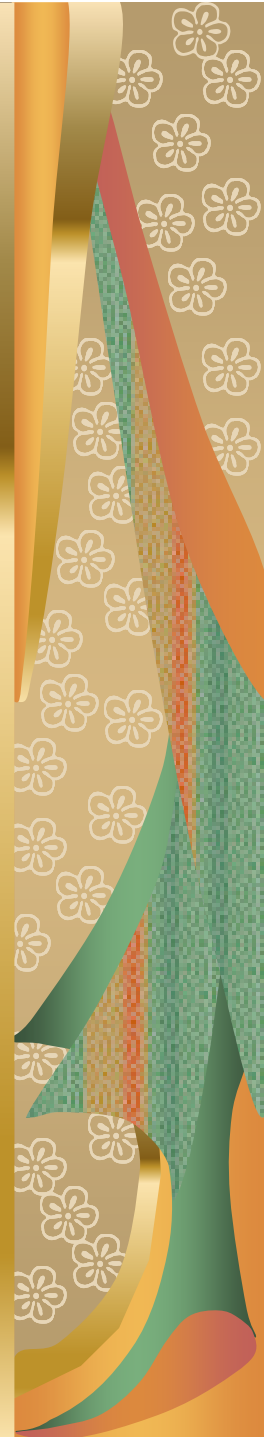
- If <u>today is Thursday</u>, then <u>tomorrow is Friday</u> *(H)* *(C)*

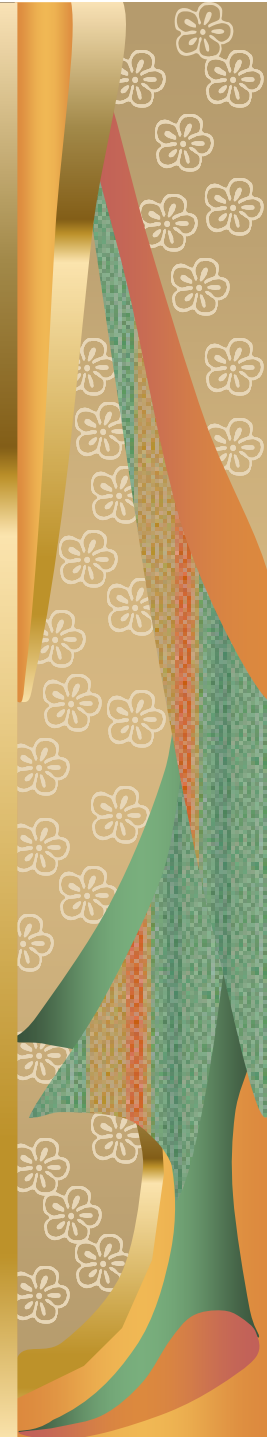- If <u>I study hard for a test</u>, then <u>I will get a good grade.</u> *(H)* *(C)*

Converse Statements

- Given that the conditional statement is *If p, then q.* The converse statement is *If q, then p.*

- You just switch the two halves of the statement to make the converse

Counter example

- An example used to prove that an if-then statement is false

Example 2

- Decide if the given statement is true or false
- Write the converse of the following, identify the hypothesis and conclusion of the converse, and decide whether the converse is true or false.
- If it is false, write a counter-example.

- If I live in York Pennsylvania, then I live south of Canada. **T**

$$\text{If } \underset{H}{\underline{\text{I live South of Canada}}}, \text{ then } \underset{C}{\underline{\text{I live in York, PA}}}. \quad F$$

Counter example: Detroit

Biconditional Statement

- A statement whose conditional and converse statement are both true