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Class: Honors Geometry
Date: 9/19/06
Topic: Lesson 2-1 (Conditional Statements)

Conditional Statement	Also know as an if-then statement Two parts: hypothesis and conclusion if **<u>hypothesis</u>** then **<u>conclusion</u>**
Example	If it is raining then water is falling from the sky <u>Hypothesis</u>: it is raining <u>Conclusion</u>: water is falling from the sky
Example	pg.68, Check Understanding 1 If $y - 3 = 5$ then $y = 8$ <u>Hypothesis</u>: $y - 3 = 5$ <u>Conclusion</u>: $y = 8$
Writing a conditional	Break statement into two parts Identify the subject of the first part and make a general reference to it Use the first as the hypothesis and second as conclusion
Example	pg. 71, #12 All obtuse angles have measure greater than 90 <u>1st part</u>: all obtuse angles → subject is obtuse angles → an angle is an obtuse angle <u>2nd part</u>: have a measure greater than 90 If **an angle is an obtuse angle** then **it has a measure greater than 90**
Truth value of a conditional	true or false Is the conditional true or is it false? Answer to this question is the truth value
Proving a conditional false	Find a counter-example

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Example

pg 72, #18
If you play a sport with a ball and a bat then you are playing baseball

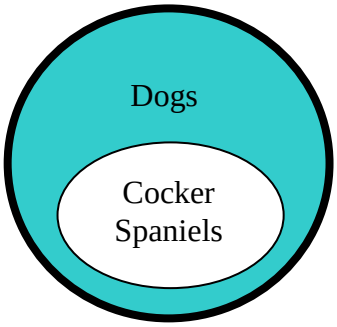
- softball and cricket both use a ball and a bat
- statement is false

Venn Diagrams

Way to visualize a conditional statement
Hypothesis is the inner circle
Conclusion is the outer circle

Example

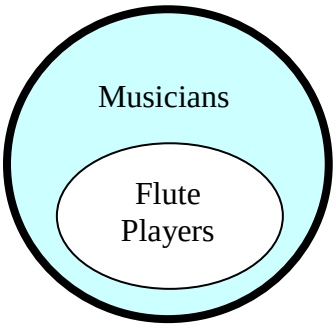
What conditional does this represent?



If something is a cocker spaniel then it is a dog

Example

pg. 72, #20
Make a Venn diagram for this conditional:
If you play the flute then you are a musician



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Converse of a conditional	Swap the hypothesis and conclusion Conclusion may not be true Always check truth value of both
Example	p.72, #28 Conditional: If a point is in the 1st quadrant then its coords are positive Converse: If the coords of a point are positive the it is in the 1st quadrant Truth values: Conditional: true Converse: true
Example	Conditional: If it is raining then water is falling fm the sky Converse: If water is falling fm the sky then it is raining Truth values: Conditional: true Converse: false (counter-example: water fm hose)
Symbols	$p \rightarrow q$ means if p then q Often see: Let p: The point is in the 1st quadrant Let q: The point's coordinates are positive $p \rightarrow q$ (the conditional) $q \rightarrow p$ (the converse)
Postulates as conditionals	Postulate 1-2 (as a statement) Two intersecting lines meet in exactly one point As a conditional: If two lines intersect then they meet in exactly one point.