Geometry: Bell Work

Solve the problem in the left column, showing all steps. For each step, explain what you did in the right column. An example is given.

example

$-5(x+4) = 70$	original equation
$-5 \cdot x + -5 \cdot 4 = 70$	distribution
$-5x - 20 = 70$	
$-5x - 20 + 20 = 70 + 20$	addition
$-5x = 90$	
$-5x \div (-5) = 90 \div (-5)$	division
$x = -18$	

steps	justification
$2x + 2(3x + 4) = 24$	original eqn
$2x + 6x + 8 = 24$	distribution
$8x + 8 = 24$	combine like terms
$-8 \quad -8$	subtract
$\frac{8x}{8} = \frac{16}{8}$	division
$x = 2$	

Pull out Assignment 2.1. Pass it forward

2-3 Conditional Statements

We have:
Used inductive reasoning to make conjectures and find counterexamples.

Today we will:
Analyze statements in if-then form, and write the inverse, converse, and contrapositive of if-then statements.

Conditional Statements Task.

Each seat-pair will need:

- If , then . template
- Directions
- Chart
- Index cards with conditional statement

You will ONLY write on the chart. Leave all other papers blank!

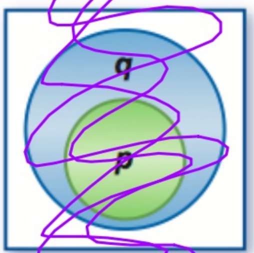
Notes

A **conditional statement** is a statement ~~that can~~ that can be written in *if-then form*.

All birds fly.

If it is a bird, then it can fly.

p q

Words	Symbols	Model
An **if-then statement** is of the form *if p, then q*.	$p \rightarrow q$ read *if p then q*, or *p implies q*	 $p \rightarrow q$
The **hypothesis** of a conditional statement is the phrase immediately following the word *if*.	p	
The **conclusion** of a conditional statement is the phrase immediately following the word *then*.	q	

Rectangles have 4 sides

Conditional

If it is a rectangle, then it has 4 sides

Converse

If it has 4 sides, then it is a rectangle

inverse

If , then

contra

A conditional statement is a statement that can be written in the form *if p, then q*.	$p \rightarrow q$	If $m\angle A$ is 35, then $\angle A$ is an acute angle.
The **converse** is formed by exchanging the hypothesis and conclusion of the conditional.	$q \rightarrow p$	If $\angle A$ is an acute angle, then $m\angle A$ is 35.
The **inverse** is formed by negating both the hypothesis and conclusion of the conditional.	$\sim p \rightarrow \sim q$	If $m\angle A$ is *not* 35, then $\angle A$ is *not* an acute angle.
The **contrapositive** is formed by negating both the hypothesis and the conclusion of the converse of the conditional.	$\sim q \rightarrow \sim p$	If $\angle A$ is *not* an acute angle, then $m\angle A$ is *not* 35.

conditional	$p \to q$	if p then q
converse	$q \to p$	if q then p
inverse	$\neg p \to \neg q$	if not p then not q
contrapositive	$\neg q \to \neg p$	if not q then not p

Statements that have the same truth value (both true or both false) are said to be **logically equivalent**.

- A conditional and its contrapositve are logically equivalent.
- The converse and inverse of a conditional are logically equivalent.

2-3 Conditional Statements

Today we:

Analyzed statements in if-then form, and wrote the inverse, converse, and contrapositive of if-then statements.

Assignment:

Pg 109 # 1-10