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·x + -5·4 = 70	distribution
-5x - 20 = 70	
-5x - 20 + 20 = 70 + 20	addition
-5x = 90	
-5x ÷ (-5) = 90 ÷ (-5)	division
x = -18	

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

Pull out Assignment 2.1.

Let's talk about # 5-10

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 be written in *if-then form*.

All birds fly.

If it is a bird, then it can fly.

conditional statement

If it is a rectangle, then it has four sides

converse

If it has four sides, then it is a rectangle

inverse

If it is not a rectangle, it does not have 4 sides

contrapositive

If it does not have 4 sides, it is not a rectangle

Words	Symbols
An **if-then statement** is of the form *if p, then q.*	$p \rightarrow q$ read *if p then q,* or *p implies 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

conditional statement $p \rightarrow q$

converse $q \rightarrow p$

inverse $\sim p \rightarrow \sim q$

if not p then not q

contrapositive $\sim q \rightarrow \sim p$

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.

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.

Today we:

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

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Assignment:

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