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
$2x + 2(3x + 4) = 24$	
$2x + 6x + 8 = 24$	distribute
$8x + 8 = 24$	combine like terms
$-8 \quad -8$	
$\frac{8x}{8} = \frac{16}{8}$	subtract divide
$x = 2$	

Pull out Assignment 2.1.

Let's talk about # 5-10

5 3, 3, 6, 9, 15, . . .
+4 +8 +16 +32

6. 2, 6, 14, 30, 62, . . .

double what you are adding

×2, +2 +1, ×2

-3 +3
-2 +2
-1 +1

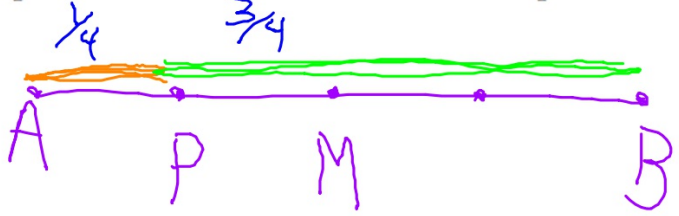
Make a conjecture about each value or geometric relationship.

7. the product of two even numbers

8. the relationship between a and b if $a + b = 0$ ~~2+2=0~~

9. the relationship between the set of points in a plane equidistant from point A

10. the relationship between $\overline{AP}$ and $\overline{PB}$ if M is the midpoint of $\overline{AB}$ and P is the midpoint of $\overline{AM}$



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.

Notes

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

Dogs have four legs

If it is a dog, then it has 4 legs.

	T/F ?
conditional statement If it is a rectangle, then it has four sides.	T
converse If it has four sides, then it is a rectangle	F
inverse If it is not a rectangle then it does not have 4 sides	F
contrapositive If it does not have four sides, then it is not a rectangle.	T

Words	Symbols
An **if-then statement** is in the form *if p, then q.*	$p \rightarrow q$ read *if p then q,* or *p implies q*
The **hypothesis** is the "if" part of the statement	p
The **conclusion** is the "then" part of the statement	q

negation
"not"

$\sim$ $\neg$

conditional statement $p \rightarrow q$

converse $q \rightarrow p$

inverse $\sim p \rightarrow \sim q$

contrapositive $\sim q \rightarrow \sim p$

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.

Today we:

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

Assignment:

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