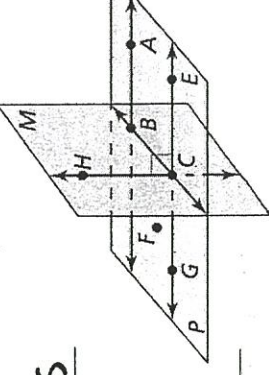


Chapter 2 Group Review

1/2 For #1-6, use the diagram to determine whether you can assume the statement. Answer "yes" or "no"



1. $\overleftrightarrow{AB} \perp$ plane M NO 4. planes M and P intersect at $\overleftrightarrow{BC}$ yes
 2. points F, G, and A are coplanar yes 5. $\overleftrightarrow{FA}$ lies in plane P yes
 3. points E, C, and G are collinear yes 6. $\overleftrightarrow{FG}$ intersects $\overleftrightarrow{AB}$ at point B NO

7. Solve the equation. Justify each step. **you may not need to use all spaces provided in the table**

<u>1/4</u>	$-9x - 21 = -20x - 87$	Given equation
	$-21 = -11x - 87$	Addition Prop. =
	$66 = -11x$	Addition Prop. =
	$-6 = x$	Division Prop. =

For #8-10, name the property that the statement illustrates.

8. If $LM = RS$ and $RS = 25$, then $LM = 25$ Transitive Prop. =

9. $AM = AM$ Reflexive Prop. =

10. If $\angle DEF \cong \angle JKL$, then $\angle JKL \cong \angle DEF$ Symmetric Prop. $\cong$

For #11, write the converse, inverse, and contrapositive of the given conditional statement:

11. Conditional: If it is raining outside, then the ground is wet.

Converse: If the ground is wet, then it is raining outside.

Inverse: If it is not raining outside, then the ground is not wet

Contrapositive: If the ground is not wet, then it is not raining outside

12. Find a counterexample to prove the statement false:

"The product of two positive numbers is always greater than either number."

1/2 and 1/4 : $(\frac{1}{2})(\frac{1}{4}) = \frac{1}{8}$, and $\frac{1}{8} < \frac{1}{2}$ and

13. Which two statements are always logically equivalent?

conditional and contrapositive
converse and inverse

For #14 and #15, determine whether inductive or deductive reasoning was used.

14. This weekend, the sun was shining and it did not rain. So, the next time the sun is shining you know that it will not rain.

inductive

15. The product of two even integers is always even. Because 92 and 14 are even numbers, the product is even.

deductive

For #16, use the Law of Detachment to determine what you can conclude from the given information, if possible.

- ① $\frac{1}{4}$ 16. If an angle is a right angle, then the angle measures 90° . $\angle B$ is a right angle.

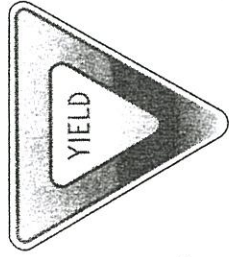
$$m\angle B = 90^\circ$$

For #17, use the Law of Syllogism to draw a conclusion to write a new conditional statement that follows from the pair of true statements, if possible.

- ① $\frac{1}{4}$ 17. If $x = 3$, then $2x = 6$. If $4x = 12$, then $x = 3$.

$$\text{if } 4x = 12, \text{ then } 2x = 6$$

- ① $\frac{1}{4}$ 18. The formula for the area A of a triangle is $A = \frac{1}{2}bh$, where b is the base and h is the height. Solve the formula for h (that is, solve the equation for $h = ??$ instead of $A = ??$) and justify each step. Then use this equation to find the height of a standard yield sign when the area is 558 square inches and each side is 36 inches.



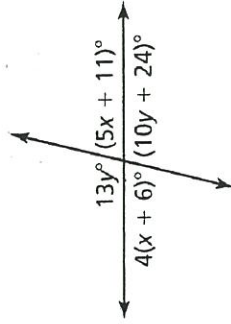
$$\star A = \frac{1}{2}bh \text{ given equation}$$

$$2A = bh \text{ multiplication prop.} =$$

$$\frac{2A}{b} = h \text{ division prop.} =$$

$$\star h = \frac{2(558)}{36} = \frac{1116}{36} = 31$$

- ① $\frac{1}{4}$ 19. Find the values of x and y .



$$5x + 11 = 4(x + 6)$$

$$5x + 11 = 4x + 24$$

$$x = 13$$

$$13y = 10y + 24$$

$$3y = 24$$

$$y = 8$$

The yield sign is 31 inches tall.

- ① $\frac{1}{2}$ 20. Fill in the flow chart proof.

Given: $\angle 3$ and $\angle 2$ are complementary

$$m\angle 1 + m\angle 2 = 90^\circ$$

Prove: $\angle 3 \cong \angle 1$

$\angle 2$ and $\angle 3$ are comp.

given

$$m\angle 1 + m\angle 2 = 90^\circ$$

given

$\angle 1$ and $\angle 2$ are comp

if add to $90^\circ \rightarrow$ comp $\cong$ comps. thm

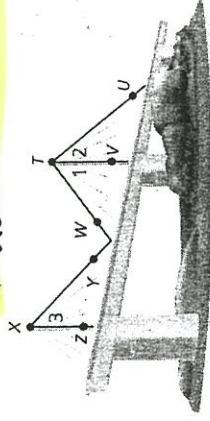
$$\angle 3 \cong \angle 1$$

- ① $\frac{1}{2}$ 21. Fill in the flow chart proof.

Given: $\angle 2 \cong \angle 3$

$\overleftrightarrow{TV}$ bisects $\angle UTV$

Prove: $\angle 1 \cong \angle 3$



$$\angle 2 \cong \angle 3$$

given

$\overleftrightarrow{TV}$ bisects $\angle UTV$

given

$$\angle 1 \cong \angle 2$$

if $\angle$ bisector $\rightarrow 2 \cong 1$'s

$$\angle 1 \cong \angle 3$$

Trans. prop. $\cong$