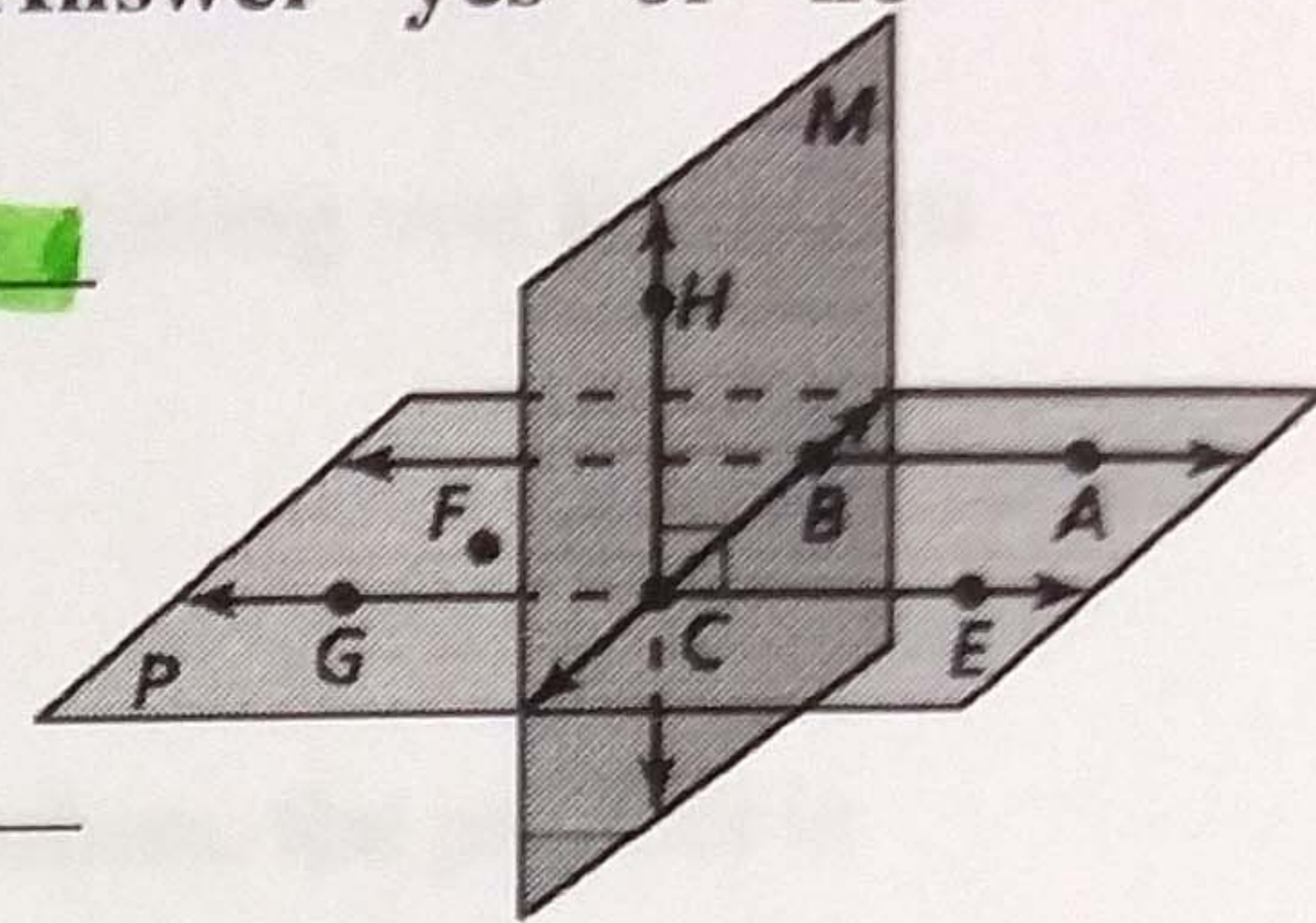


### Chapter 2 Group Review

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
2. points F, G, and A are coplanar YES
3. points E, C, and G are collinear YES
4. planes M and P intersect at  $\overleftrightarrow{BC}$  YES
5.  $\overleftrightarrow{FA}$  lies in plane P 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\*\**

$-9x - 21 = -20x - 87$	1. Given
$11x - 21 = -87$	2. ADD. PoE
$11x = -66$	3. ADD. PoE
$x = -6$	4. DIV. PoE

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

8. IF  $LM = RS$  and  $RS = 25$ , then  $LM = 25$  TRANS/SUBST. PoE
9.  $AM = AM$  REFL. PoE
10. If  $\angle DEF \cong \angle JKL$ , then  $\angle JKL \cong \angle DEF$  SYMM. PoC

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 TIMES 2 EQUALS 2



13. Which two statements are always logically equivalent?

CONDITIONAL and CONTRAPOSITIVE  
INVERSE and CONVERSE

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.

16. If an angle is a right angle, then the angle measures  $90^\circ$ .  $\angle B$  is a right angle.

$\angle B$  MEASURES  $90^\circ$

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.

17. If  $x = 3$ , then  $2x = 6$ . If  $4x = 12$ , then  $x = 3$ .

IF  $2x = 6$ , THEN  $4x = 12$

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.



$A = \frac{1}{2}bh$

1. GIVEN

$2A = bh$

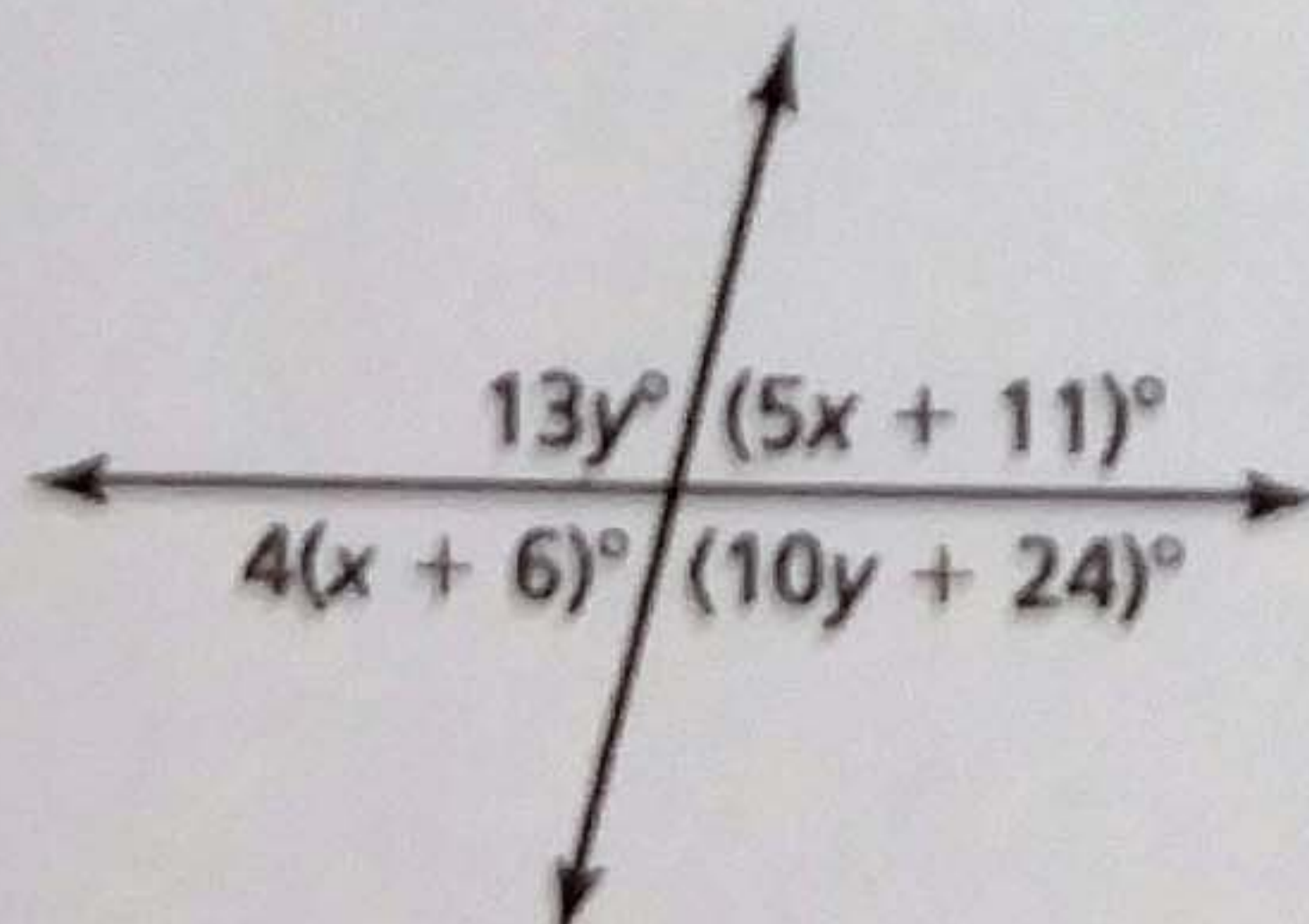
2. MULT. PoE

$\frac{2A}{b} = h$

3. DIV. PoE

$\frac{2(558)}{36} = 31 \text{ inches}$

19. Find the values of  $x$  and  $y$ .



$13y = 10y + 24$

$3y = 24$

$y = 8$

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

$5x + 11 = 4x + 24$

$x + 11 = 24$

$x = 13$



20. Fill in the flow chart proof.

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

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

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

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

given

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

IF COMP.  $\angle$ 'S  $\leftrightarrow$  ADD  
TO  $90^\circ$

$\angle 3$  &  $\angle 2$  ARE  
COMPLEMENTARY

given

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

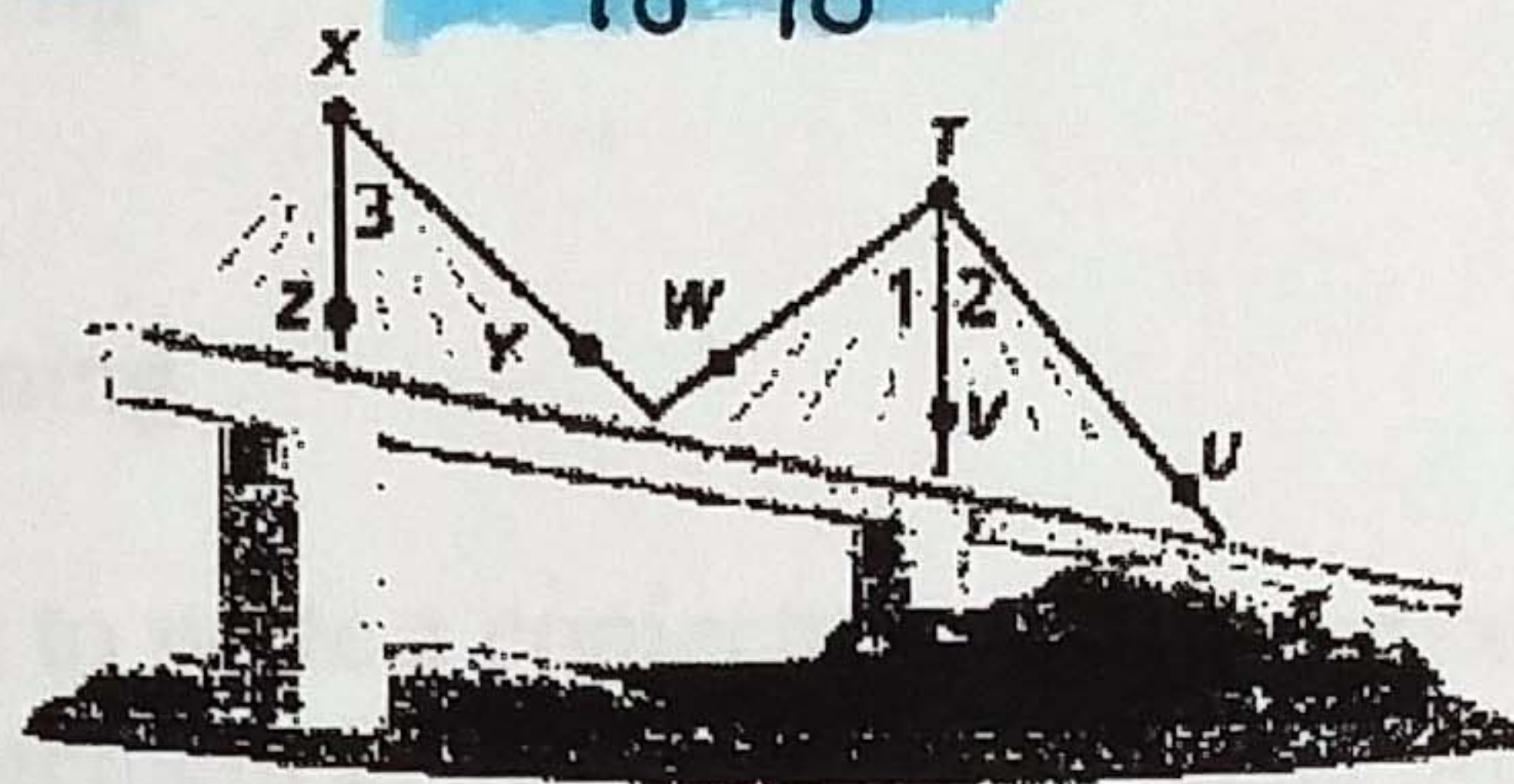
$\cong$  COMPS. THM.

21. Fill in the flow chart proof.

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

$\overrightarrow{TV}$  bisects  $\angle UTW$

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



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

given

$\overrightarrow{TV}$  BISECTS  
 $\angle UTW$

given

$$\angle UTV \cong \angle WTV$$

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

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

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

Trans. prop.