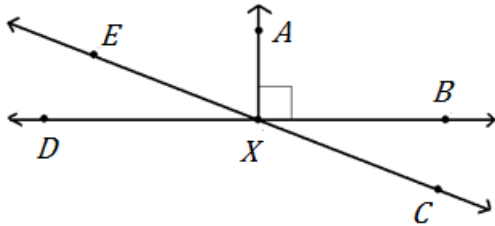**ANSWERS!**

DIRECTIONS: For #1-15, make each of the following statements **TRUE** by completing them with *ALWAYS*, *SOMETIMES*, or *NEVER*. Write the entire words in the blanks.

1. Vertical angles are **always** congruent.

2. Vertical angles are **sometimes** complementary angles.

3. Two points **never** lie in exactly one plane.

4. Three points are **always** coplanar.

5. Complementary angles are **sometimes** congruent.

6. Complementary angles are **always** acute angles.

7. A line segment **always** has a midpoint.

8. Two lines **sometimes** intersect in exactly one point.

9. Three points **sometimes** lie in exactly one plane.

10. Two planes **sometimes** intersect in exactly one line.

11. Two intersecting lines are **always** contained in exactly one plane.

12. If P and Q are in a plane, then $\overleftrightarrow{PQ}$ is **always** in that plane.

13. Two points **always** lie in exactly one line.

14. Three points **sometimes** lie in exactly one line.

15. A line and a point not on that line **never** lie in more than one plane.

<u>DIRECTIONS</u>: For #16-19, answer the questions and show work.

16. $\angle 1$ and $\angle 2$ are complementary. $\qquad$ What is x? $\quad x =$ **12**
$\quad m\angle 1 = 3x + 11$ and $m\angle 2 = 4x - 5$. $\qquad m\angle 1$? $\quad m\angle 1 =$ **47**
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad m\angle 2$? $\quad m\angle 2 =$ **43**

17. $\angle 3$ and $\angle 4$ are supplementary. $\qquad$ What is x? $\quad x =$ **14**
$\quad m\angle 3 = 5x - 6$ and $m\angle 4 = 8x + 4$. $\qquad m\angle 3$? $\quad m\angle 3 =$ **64**
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad m\angle 4$? $\quad m\angle 4 =$ **116**

18. The measure of an angle is two times as large as its complement. What are the measures of **both** angles?

60 & 30

19. The measure of an angle is one-fifth as large as its supplement. What are the measures of **both** angles?

30 & 150

<u>DIRECTIONS</u>: For #20-23, use the following diagram and given information.

GIVEN: $\angle AXB$ is a right angle.

20. Name another right angle.   **∠AXD**

21. Name two complementary angles.   **∠DXE & ∠EXA**

22. Name two supplementary angles. **∠DXE & ∠EXB or ∠EXA & ∠AXC or ∠DXA & ∠AXB or ∠EXB & ∠BXC**

23. Name two vertical angles.   **∠DXE & ∠BXC**

<u>DIRECTIONS</u>: For #24-25, solve for the variable. Show work on #24.

24. Solve for y. $y = $ **21**
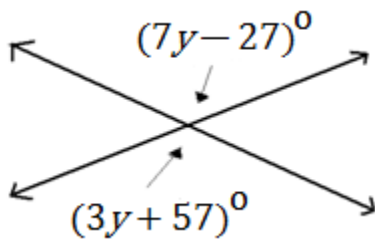
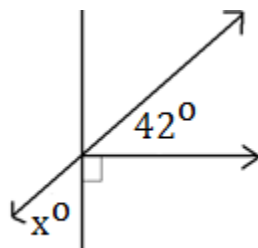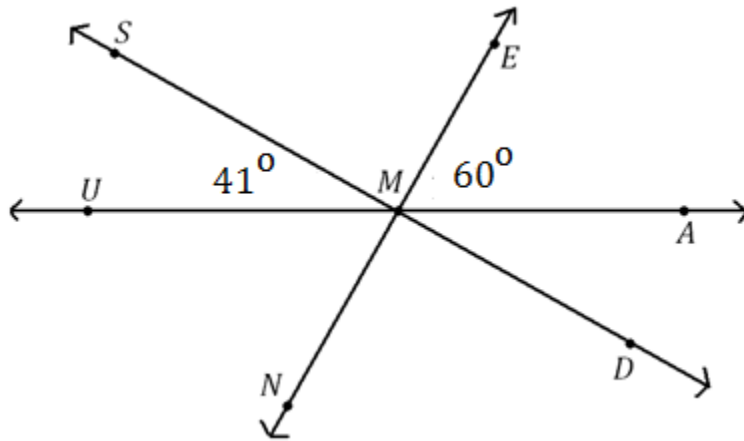**25.** Solve for x. $x = $ **48**

<u>DIRECTIONS</u>: For #26-29, use the following diagram to complete the statements.

26. $m\angle NMU =$ **60**   **28.** $m\angle SMA =$ **139**

27. $m\angle NMD =$ **79**   **29.** $m\angle EMD =$ **101**

<u>DIRECTIONS</u>: For #30, use the given information to solve the problem. Show work. Write your answer in the provided blank.

30. The measure of the supplement of an angle is 10 less than six times the measure of the complement of the same angle. Find the measure of the angle.

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