Cumulative Review: Chapters 1–3

Complete each statement with the word *always*, *sometimes*, or *never*.

A 1. If $\overleftrightarrow{AB}$ intersects $\overline{CD}$, then $\overline{AB}$ ___?___ intersects $\overline{CD}$.

2. If two planes intersect, their intersection is ___?___ a line.

3. If $a \perp c$ and $b \perp c$, then a and b are ___?___ parallel.

4. If two parallel planes are cut by a third plane, then the lines of intersection are ___?___ coplanar.

5. A scalene triangle ___?___ has an acute angle.

Draw a diagram that satisfies the conditions stated. If the conditions cannot be satisfied, write *not possible*.

6. $\overline{AB}$ and $\overline{XY}$ intersect and A is the midpoint of $\overline{XY}$.

7. A triangle is isosceles but not equilateral.

8. Three points all lie in both plane M and plane N.

9. Two lines intersect to form adjacent angles that are not supplementary.

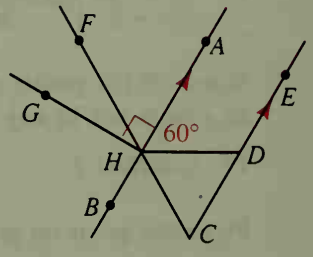
10. Points A and B on a number line have coordinates -3.5 and 8.5. Find the coordinate of the midpoint of $\overline{AB}$.

11. $\overrightarrow{QX}$ bisects $\angle PQR$, $m\angle PQX = 5x + 13$, and $m\angle XQR = 9x - 39$. Find (a) the value of x and (b) $m\angle PQR$.

12. The measure of a supplement of an angle is 35 more than twice the complement of the angle. Find the measures of the angle, its supplement, and its complement.

13. The measures of two angles of a triangle are five and six times as large as the measure of the smallest angle. Find all three measures.

In the diagram $\overleftrightarrow{AB}$ bisects $\angle DHF$, $\overleftrightarrow{AB} \perp \overline{GH}$, $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, and $m\angle AHD = 60$. Find the measure of each angle.



14. $\angle FHD$ 15. $\angle AHG$ 16. $\angle FHG$

17. $\angle GHB$ 18. $\angle BHC$ 19. $\angle DHC$

20. $\angle HDE$ 21. $\angle HDC$ 22. $\angle HCD$

Tell whether each statement is true or false. Then write the converse and tell whether it is true or false.

23. If two lines do not intersect, then they are parallel.

24. If two lines intersect to form right angles, then the lines are perpendicular.

25. An angle is acute only if it is not obtuse.

26. A triangle is isosceles if it is equilateral.