Cumulative Review: Chapters 1–11

In Exercises 1–12 classify each statement as true or false.

A 1. If point A lies on $\overrightarrow{BC}$, but not on $\overline{BC}$, then B is between A and C.

2. A true conditional always has a true converse.

3. The statement "If $ac = bc$, then $a = b$" is true for all real numbers a, b, and c.

4. If two parallel lines are cut by transversal t and t is perpendicular to one of the lines, then t must also be perpendicular to the other line.

5. If $\triangle ABC \cong \triangle DEF$ and $\angle A \cong \angle B$, then $\overline{DE} \cong \overline{EF}$.

6. If the opposite sides of a quadrilateral are congruent and the diagonals are perpendicular, then the quadrilateral must be a square.

7. If $\triangle GBS \sim \triangle JFK$, then $\dfrac{JF}{JK} = \dfrac{GB}{GS}$.

8. The length of the altitude to the hypotenuse of a right triangle is always the geometric mean between the lengths of the legs.

9. In any right triangle, the sine of one acute angle is equal to the cosine of the other acute angle.

10. If an angle inscribed in a circle intercepts a major arc, then the measure of the angle must be between 180 and 360.

11. The angle bisectors of an obtuse triangle intersect at a point that is equidistant from the three vertices.

12. If $JK = 10$, then the locus of points in space that are 4 units from J and 5 units from K is a circle.

13. Two lines that do not intersect are either __?__ or __?__.

14. In $\triangle RST$, $m \angle R = 2x + 10$, $m \angle S = 3x - 10$, and $m \angle T = 4x$.
   a. Find the numerical measure of each angle.
   b. Is $\triangle RST$ scalene, isosceles, or right? Why?

15. Use inductive thinking to guess the next number: 10, 9, 5, -4, -20, __?__.

16. If a diagonal of an equilateral quadrilateral is drawn, what method could be used to show that the two triangles formed are congruent?

17. A trapezoid has bases with lengths $x + 3$ and $3x - 1$ and a median of length 11. Find the value of x.

18. If 4, 7, and x are the lengths of the sides of a triangle and x is an integer, list the possible values for x.

19. Describe the locus of points in space that are 4 cm or less from a given point P.

20. Two similar rectangles have diagonals of $6\sqrt{3}$ and 9. Find the ratio of their perimeters and the ratio of their areas.