Cumulative Review: Chapters 1–8

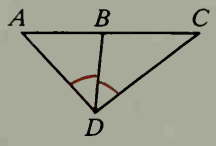
In Exercises 1–8, complete each statement.

A

1. If S is between R and T, then $RS + ST = RT$ by the ___?___.
2. A statement that is accepted without proof is called a ___?___.
3. A statement that can be proved easily by using a theorem is called a ___?___.
4. To write an indirect proof, you assume temporarily that the ___?___ is not true.
5. A conditional and its ___?___ are always logically equivalent.
6. The sides of an obtuse triangle have lengths x, $2x + 2$, and $2x + 3$. ___?___ $< x <$ ___?___.
7. In an isosceles right triangle, the ratio of the length of a leg to the length of the hypotenuse is ___?___.
8. If $\sin B = \frac{8}{17}$, then $\cos B =$ ___?___.
9. Given: A triangle is equiangular only if it is isosceles.
   a. Write an if-then statement that is logically equivalent to the given conditional.
   b. State the converse. Sketch a diagram to disprove the converse.
10. Use inductive reasoning to guess the next two numbers in the sequence:
    1, 2, 6, 15, 31, 56, . . .
11. When two parallel lines are cut by a transversal, two corresponding angles have measures x^2 and $6x$. Find the measure of each angle.

B

12. In $\triangle XYZ$, $m\angle X : m\angle Y : m\angle Z = 3:3:4$.
    a. Is $\triangle XYZ$ scalene, isosceles, or equilateral?
    b. Is $\triangle XYZ$ acute, right, or obtuse?
    c. Name the longest side of $\triangle XYZ$.
13. If $AB = x - 5$, $BC = x - 2$, $CD = x + 4$, and $DA = x$, find the value of x.



14. The diagonals of a rhombus have lengths 18 and 24. Find the length of one side.
15. Write a paragraph proof: If $\overline{AX}$ is a median and an altitude of $\triangle ABC$, then $\triangle ABC$ is isosceles.
16. Given: $NPQRST$ is a regular hexagon.
    Prove: $NPRS$ is a rectangle.
    (Begin by drawing a diagram.)
17. Given: $\angle WXY \cong \angle XZY$
    Prove: $(XY)^2 = WY \cdot ZY$