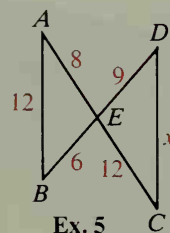


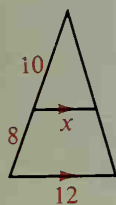
Cumulative Review: Chapters 1–13

- A** 1. \overrightarrow{BD} bisects $\angle ABC$, $m\angle ABC = 5x - 4$, and $m\angle CBD = \frac{3}{2}x + 21$.
Is $\angle ABC$ acute, obtuse, or right?
2. Name five ways to prove that two lines are parallel.
3. If the diagonals of a quadrilateral are congruent and perpendicular, must the quadrilateral be a square? a rhombus? Draw a diagram to illustrate your answer.
4. Write “ $x = 1$ only if $x \neq 0$ ” in if-then form. Then write the contrapositive and classify the contrapositive as true or false.
5. Refer to the diagram.
a. Show that $\angle B \cong \angle D$.
b. Find the value of x .
c. Find the ratio of the areas of the triangles.
6. Is a triangle with sides of lengths 12, 35, and 37 acute, right, or obtuse?
7. In $\triangle ABC$, $\overline{AB} \perp \overline{BC}$, $AB = 1$, and $AC = 3$. Find:
a. $\cos A$ b. $\sin C$ c. $\tan A$ d. $\cos C$
8. Find the perimeter and area of a regular hexagon with apothem $\sqrt{3}$ cm.
9. Find the total area and volume of a cylinder with radius 10 and height 8.2.
10. Describe the locus of the centers of all circles tangent to each of two given parallel lines.

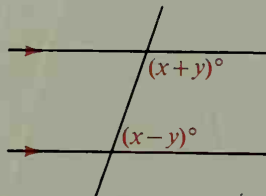


Find the value of x .

11.



12.

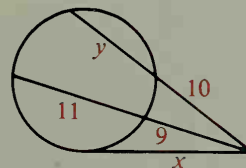


13. 104°



- B** 14. If x is the length of a tangent segment in the diagram, find the values of x and y .

15. Prove: If the ray that bisects an angle of a triangle is perpendicular to the side that it intersects, then the triangle is an isosceles triangle.



16. Draw an obtuse triangle. Construct a circumscribed circle about the triangle.
17. Use coordinate geometry to prove that the median of a trapezoid is parallel to each base.