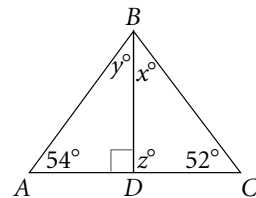# 3-4 • Guided Problem Solving

GPS **Student Page 151, Exercise 25**

Algebra Find the values of the variables and then the measures of the angles. Classify each triangle in the figure by its angles.

Read and Understand

1. How many triangles does the figure contain? _____

2. The sum of the measures in any triangle is _____.

3. What kind of triangle is $\triangle ABD$? _____

Plan and Solve

4. What is the value of z? _____ Explain. _____

5. What postulate or theorem can be used to find x and y,
   now that the other angles in $\triangle ABD$ and $\triangle CBD$ are known? _____

6. Find x. _____

7. Find y. _____

8. Classify $\triangle ABD$ and $\triangle BCD$ each by their angles. _____

9. Add x and y to find $m\angle ABC$. _____

10. Classify $\triangle ABC$ by its angles. _____

Look Back and Check

11. Do the measures you found for the three angles of
    $\triangle ABC$ match the physical appearance of the figure? Explain. _____

    _____

Solve Another Problem

12. Suppose that $m\angle ABD$ and $m\angle CBD$ are both $y°$.
    What other angle in the figure would have to change
    in order for the triangles to each have angle sum of $180°$? _____