


Do you UNDERSTAND?  **MATHEMATICAL PRACTICES**

7. Explain how the Triangle Exterior Angle Theorem makes sense based on the Triangle Angle-Sum Theorem.

 **8. Error Analysis** The measures of the interior angles of a triangle are 30, x , and $3x$. Which of the following methods for solving for x is incorrect? Explain.

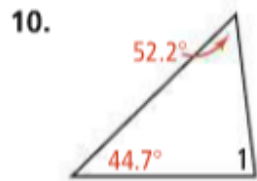
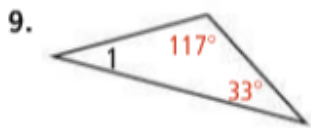
A.

$$\begin{aligned} x + 3x &= 30 \\ 4x &= 30 \\ x &= 7.5 \end{aligned}$$

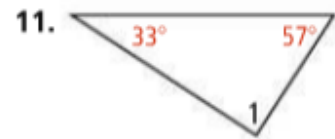
B.

$$\begin{aligned} x + 3x + 30 &= 180 \\ 4x + 30 &= 180 \\ 4x &= 150 \\ x &= 37.5 \end{aligned}$$

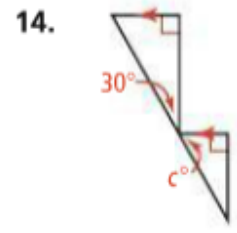
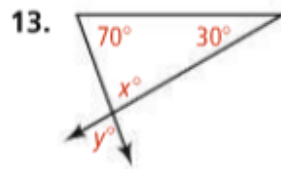
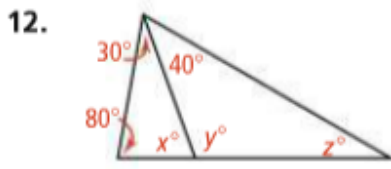
Find $m\angle 1$.



 **See Problem 1.**



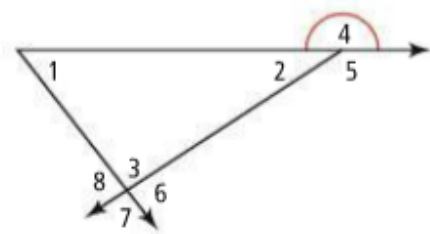
Algebra Find the value of each variable.



Use the diagram at the right for Exercises 15 and 16.

 **See Problem 2.**

15. a. Which of the numbered angles are exterior angles?
 b. Name the remote interior angles for each exterior angle.
 c. How are exterior angles 6 and 8 related?
16. a. How many exterior angles are at each vertex of the triangle?
 b. How many exterior angles does a triangle have in all?



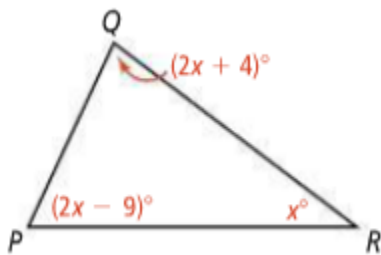
19.



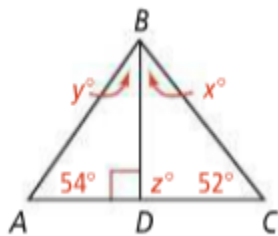
21. A lounge chair has different settings that change the angles formed by its parts. Suppose $m\angle 2 = 71$ and $m\angle 3 = 43$. Find $m\angle 1$.

24. The measure of one angle of a triangle is 108. The measures of the other two angles are in a ratio of 1 : 5.

29.



32.



43. The measure of one angle of a triangle is 115. The other two angles are congruent. What is the measure of each of the congruent angles?

A 32.5

B 57.5

C 65

D 115