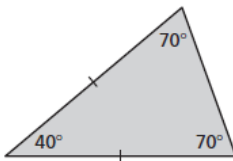


# 12.3 Extension:

## Angles Measures of Triangles

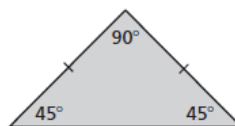
Classify the triangle.

1.



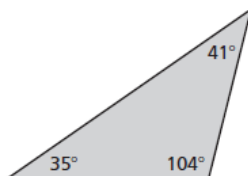
Acute isosceles

2.



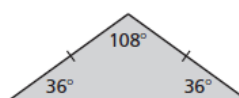
Right isosceles

3.



Obtuse scalene

4.



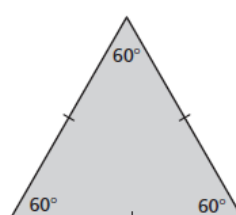
Obtuse isosceles

5.



Right scalene

6.

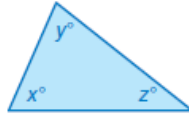


Equiangular  
equilateral

 **Key Idea**
**Sum of the Angle Measures of a Triangle**

**Words** The sum of the angle measures of a triangle is  $180^\circ$ .

**Algebra**  $x + y + z = 180$



Find each value of  $x$ . Then classify each triangle.

a.



$$\underline{28 + 50} + x = 180$$

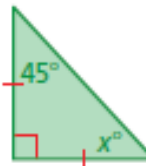
$$78 + x = 180$$

$$\begin{array}{r} -78 \\ \hline \end{array} \quad \begin{array}{r} -78 \\ \hline \end{array}$$

$$x = 102$$

Obtuse scalene

b.



$$x = 45$$

Right isosceles

two congruent sides  
also means two  
congruent angles

Find each value of  $x$ . Then classify each triangle.

a. Flag of Jamaica



$$\begin{array}{r} 2x + 128 = 180 \\ -128 \quad -128 \\ \hline 2x = 52 \\ \underline{\quad 2} \quad \underline{\quad 2} \\ x = 26 \end{array}$$

Obtuse isosceles

b. Flag of Cuba



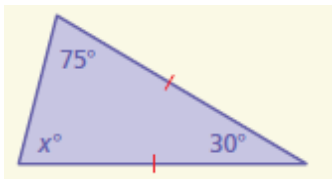
$$x = 60$$

Equilateral triangles always have  $60^\circ$  angles

Equiangular equilateral

• **Exit Ticket:** Find the value of  $x$ . Then classify the triangle.

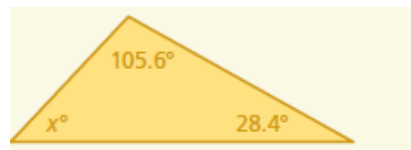
a.



$$\begin{array}{r} 75 + 30 + x = 180 \\ 105 + x = 180 \\ -105 \quad -105 \\ \hline x = 75 \end{array}$$

Acute isosceles

b.



$$\begin{array}{r} 105.6 + 28.4 + x = 180 \\ 134 + x = 180 \\ -134 \quad -134 \\ \hline x = 46 \end{array}$$

Obtuse scalene