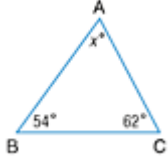


Lesson 9-4

Example 1 Find Angle Measures

Find the value of x in $\triangle ABC$.



$$m\angle A + m\angle B + m\angle C = 180$$

$$x + 54 + 62 = 180$$

$$x + 116 = 180$$

$$x + 116 - 116 = 180 - 116$$

$$x = 64$$

The sum of the measures is 180.

Replace $m\angle B$ with 54 and $m\angle C$ with 62.

Simplify.

Subtract 116 from each side.

Simplify.

The measure of $\angle A$ is 64° .

Example 2 Use Ratios to Find Angle Measures

ALGEBRA The measures of the angles of a certain triangle are in the ratio 1:3:5. What are the measures of the angles?

Words The measures of the angles are in the ratio 1:3:5.

Variables Let x represent the measure of one angle, $3x$ the measure of a second angle, and $5x$ the measure of the third angle.

Equation $x + 3x + 5x = 180$

$$9x = 180$$

$$\frac{9x}{9} = \frac{180}{9}$$

$$x = 20$$

The sum of the measures is 180.

Combine like terms.

Divide each side by 9.

Simplify.

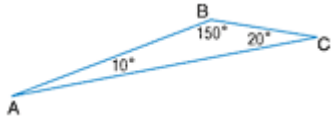
Since $x = 20$, $3x = 3(20)$ or 60, and $5x = 5(20)$ or 100. The measures of the angles are 20° , 60° , and 100° .

CHECK $20 + 60 + 100 = 180$. So, the answer is correct. ✓

Example 3 Classify Triangles

Classify each triangle by its angles and by its sides.

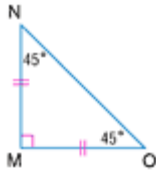
a.



Angles $\triangle ABC$ has one obtuse angle.

Sides $\triangle ABC$ has no two sides that are congruent. So, it is an obtuse scalene triangle.

b.



Angles $\triangle MNO$ has a right angle.

Sides $\triangle MNO$ has two congruent sides. So, it is a right isosceles triangle.