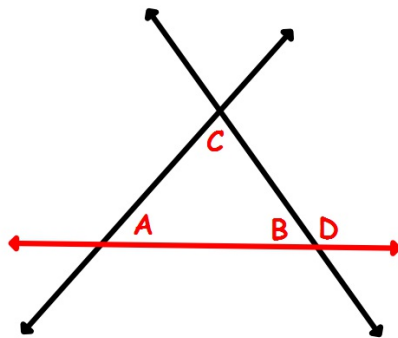


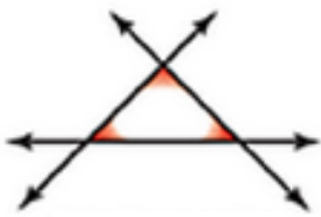
## Lesson 3.2 Angles & Triangles

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**Learning Target:** Find the measure of the Interior and Exterior Angles of a Triangle



## Review



### Interior Angles

The angles inside of a triangle.

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Sum of the Interior Angles = 180

$$x + y + z = 180$$

## Using Interior Angle Measures

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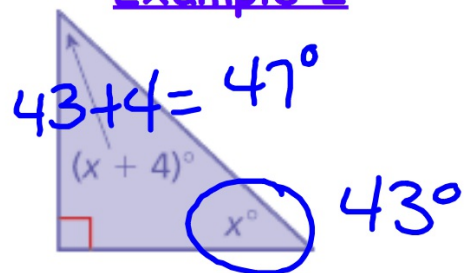
Find the measures of the angles in each triangle.

### Example 1



$$\begin{array}{r} 31 + 42 + x = 180 \\ 73 + x = 180 \\ \underline{-73} \quad \underline{-73} \\ X = 107^\circ \end{array}$$

### Example 2



$$\begin{array}{r} 90 + x + x + 4 = 180 \\ 94 + 2x = 180 \\ \underline{-94} \quad \underline{-94} \\ 2x = 86 \\ X = 43 \end{array}$$



A car travels around the park shown here. What is the value of  $x$ ?

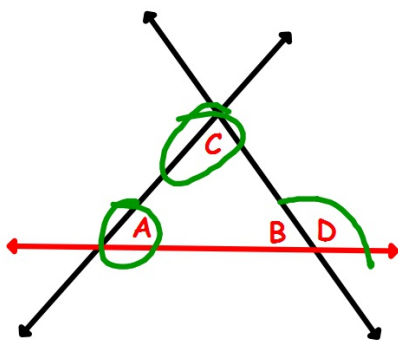
$$2(62) - 61$$

$$124 - 61$$

$$63^\circ$$

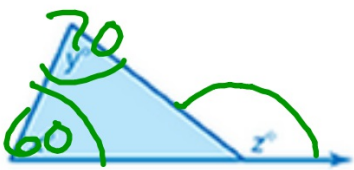
$$\begin{array}{r}
 55 + x + 2x - 61 = 180 \\
 -6 + 3x = 180 \\
 +6 \qquad \qquad \qquad +6 \\
 \hline
 3x = 186 \\
 \frac{3x}{3} = \frac{186}{3}
 \end{array}$$

$$x = 62$$



## Exterior Angles

When the sides of a polygon are extended, other angles are formed. The angles outside the polygon that are **adjacent** to the interior angles are called **Exterior Angles**.



The measure of an exterior angle is equal to the sum of the two Non-Adjacent Angles of the Triangle.

$$60 + 70 + x = 180$$

$$130 + x = 180$$

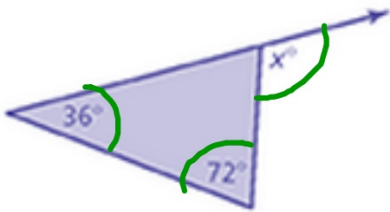
$$x = 50$$

$$60 + 70 = 130^\circ$$

## Finding Exterior Angle Measures

Find the measures of the Exterior Angle.

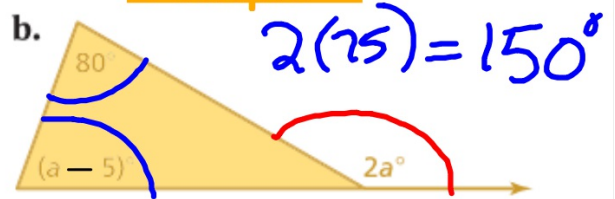
### Example 1



$$36 + 72 = x$$

$$x = 108^\circ$$

### Example 2



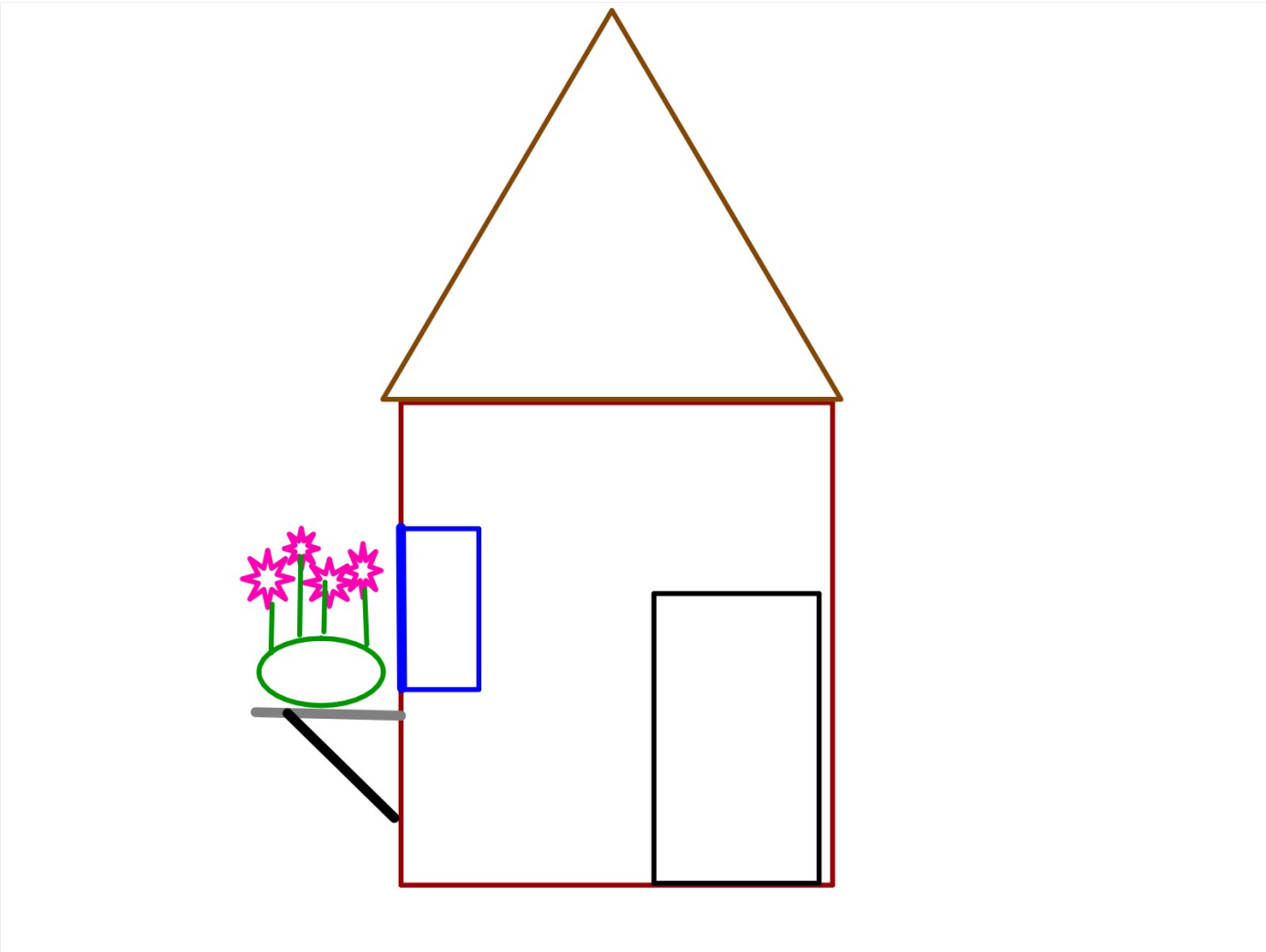
$$80 + a - 5 = 2a$$

$$75 + a = 2a$$

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

$$75 = a$$

75



## **Homework**

**pg 114 and 115**

**# 2-3 all, 8-14 all,  
15-21 odd**





