Lesson 33

TRIANGLES

A *triangle* is any figure that ha s only th ree sides. Triangles come in many different shapes and sizes, but we can classify triangles in two w ays: by their *angles* or by their *sides*.

CLASSIFYING BY ANGLES

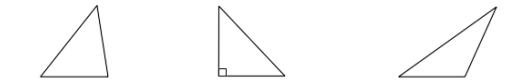
When we classify triangles by thei r angles, we look at the kinds of angles that are in the triangles. The types of triangles are related to three angles that we have learned: acute, right, and obtuse.

Acute triangle - All three angles are acute.

Right triangle - One angle is a right angle.

Obtuse triangle - One angle is an obtuse angle.

Here are examples of these three types of triangles:



Acute Triangle Right Triangle Obtuse Triangle

CLASSIFYING BY SIDES

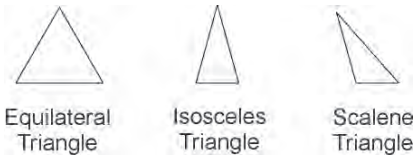
When we classify triangles by their sides, we look at the length of the sides. There are three types of triangles classified by sides.

Equilateral triangle - All three sides are the same length.

Isosceles triangle - Two sides are the same length.

Scalene triangle - None of the sides is the same length.

Here are examples of these three types of triangles:



Equilateral Triangle Isosceles Triangle Scalene Triangle

SUM OF THE ANGLES

All triangles have three angles, and the sum of the angles of a triangle *always equals 180 degrees*.

Example 1: A certain triangle has two angles of 30 degrees and 90 degrees. What is the size of the third angle?

The sum of the two known angles is 120 degrees. We subtract this from 180 to find the size of the third angle.

180 - 120 = 60

The third angle is 60 degrees.

AREA OF A TRIANGLE

Just as we have cal culated the area of rectangles and circles, we can also calculate the area of a triangle. We can see the basis for finding the area of a triangle in the process we followed to find the area of a r ectangle. To find the area of a rectangle, we multiply the length by the width. As you can see in the following diagram, a triangle is half of a rectangle: