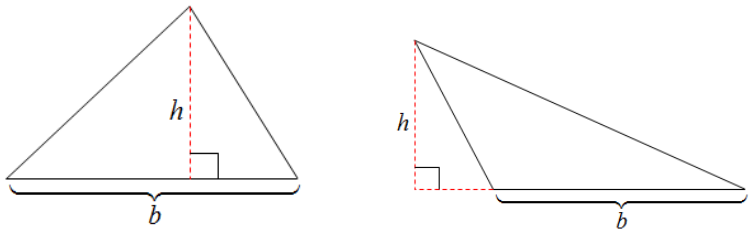
9.4 Area of Triangles

OBJECTIVE 1: Determining the Area of Oblique Triangles

Area of a Triangle: In any triangle, the area is given by $\text{Area} = \frac{1}{2}bh$ where *b* is the length of the base of the triangle, and *h*, is the length of the altitude drawn to that base (or drawn to an extension of that base.)



Area of a Triangle: If *A*, *B*, and *C* are the measures of the angles of any triangle and if *a*, *b*, and *c* are the lengths of the sides opposite the corresponding angles, then the area of triangle *ABC* is given by $\text{Area} = \frac{1}{2}bc\sin A$ or $\text{Area} = \frac{1}{2}ac\sin B$ or $\text{Area} = \frac{1}{2}ab\sin C$.

OBJECTIVE 2: Using Heron's Formula to Determine the Area of a SSS Triangle

Heron's Formula: Suppose that a triangle has side lengths of *a*, *b*, and *c*. The semiperimeter is $s = \frac{1}{2}(a+b+c)$, and the area of the triangle is $\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$.

OBJECTIVE 3: Solving Applied Problems Involving the Area of Triangles