NAME _____ DATE _____ PERIOD _____

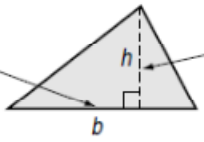
11-2 Study Guide and Intervention

Area of Triangles and Trapezoids

The area A of a triangle equals half the product of its base b and its height h.

$A = \frac{1}{2}bh$

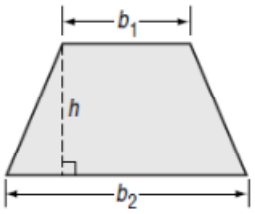
The **base** of a triangle can be any of its sides.



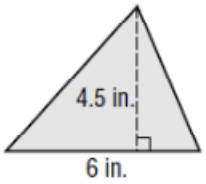
The **height** is the distance from a base to the opposite vertex.

A trapezoid has two bases, b_1 and b_2. The height of a trapezoid is the distance between the two bases. The area A of a trapezoid equals half the product of the height h and the sum of the bases b_1 and b_2.

$$A = \frac{1}{2}h(b_1 + b_2)$$



Example 1 **Find the area of the triangle.**

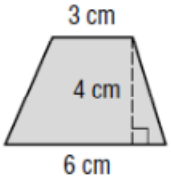


Estimate $\frac{1}{2}(6)(5) = 15$

$A = \frac{1}{2}bh$	Area of a triangle
$A = \frac{1}{2} \cdot 6 \cdot 4.5$	Replace b with 6 and h with 4.5.
$A = 13.5$	Multiply.

The area of the triangle is 13.5 square inches. This is close to the estimate.

Example 2 **Find the area of the trapezoid.**

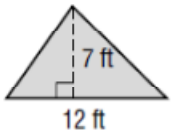


$A = \frac{1}{2}h(b_1 + b_2)$	Area of a trapezoid
$A = \frac{1}{2}(4)(3 + 6)$	Replace h with 4, b_1 with 3, and b_2 with 6.
$A = 18$	Simplify.

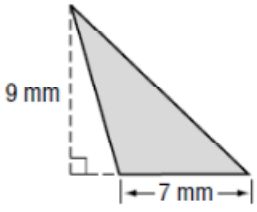
The area of the trapezoid is 18 square centimeters.

Exercises

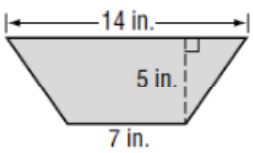
Find the area of each figure. Round to the nearest tenth if necessary.

1. 

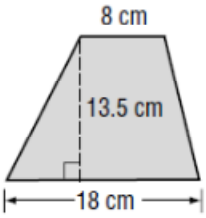
42 ft²

2. 

31.5 mm²

3. 

52.5 in²

4. 

175.5 cm²

Lesson 11–2