REVIEWING AREAS OF COMPOSITE FIGURES

A *composite figure* is a figure that can be divided into two or more simple figures. The area of a composite figure is the sum of the areas of the simple figures.

To solve problems involving the areas of composite figures, you need to be familiar with the following area formulas.

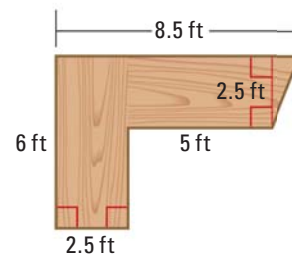**AREA FORMULAS**

Rectangle: $A = \ell w$ **Trapezoid:** $A = \frac{1}{2}(b_1 + b_2)h$

Triangle: $A = \frac{1}{2}bh$ **Circle:** $A = \pi r^2$

EXAMPLE

A carpenter is building an L-shaped countertop for a workbench. The dimensions of the countertop are shown. What is the area of the countertop?

Solution

ANOTHER WAY
You can also find the area of the countertop by dividing it into a 6 ft by 2.5 ft rectangle and a trapezoid with bases of 6 ft and 5 ft and a height of 2.5 ft.

The figure can be divided into two trapezoids as shown. The dimensions of each trapezoid are as follows:

Trapezoid A	**Trapezoid B**
$b_1 = 6 - 2.5 = 3.5$ ft	$b_1 = 5$ ft
$b_2 = 6$ ft	$b_2 = 8.5$ ft
$h = 2.5$ ft	$h = 2.5$ ft
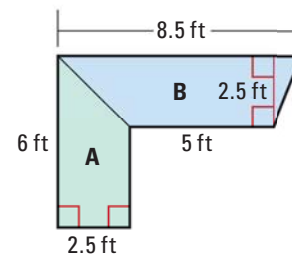
Write a verbal model for the area of the countertop.

$$
\begin{aligned}
\text{Area of countertop (ft}^2) &= \text{Area of trapezoid A (ft}^2) + \text{Area of trapezoid B (ft}^2) \\
&= \tfrac{1}{2}(b_1 + b_2)h + \tfrac{1}{2}(b_1 + b_2)h \\
&= \tfrac{1}{2}(3.5 + 6)2.5 + \tfrac{1}{2}(5 + 8.5)2.5 \\
&= 28.75
\end{aligned}
$$

▶ The area of the countertop is 28.75 square feet.