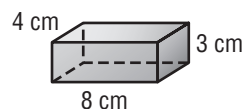**MAIN IDEA**

- Find the surface areas of rectangular prisms.

BUILD YOUR VOCABULARY (pages 241–242)
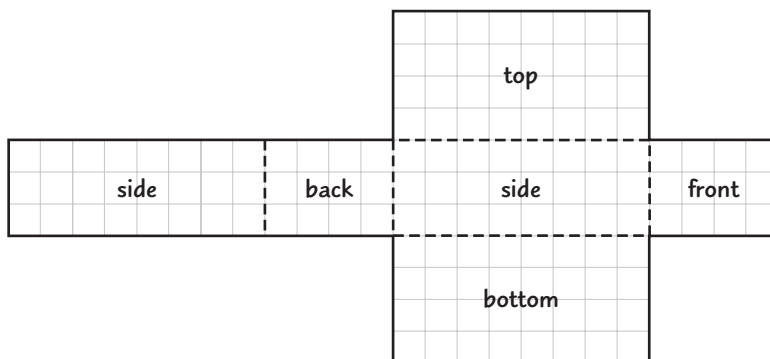
The [   ] of the areas of all the [   ] of a prism is called the **surface area** of the prism.

EXAMPLE   **Find the Surface Area of a Rectangular Prism**

1. **Find the surface area of the rectangular prism.**

4 cm   3 cm
8 cm

Find the area of each face.

top

side | back | side | front

bottom

KEY CONCEPT

Surface Area of a Rectangular Prism The surface area S of a rectangular prism with length ℓ, width w, and height h is the sum of the areas of the faces.

FOLDABLES Include the formula for finding the surface area of a rectangular prism on your Foldable.

top and bottom

$2(\ell w) = 2\left([\quad] \times [\quad]\right) = [\quad]$

front and back

$2(\ell h) = 2\left([\quad] \times [\quad]\right) = [\quad]$

two sides

$2(wh) = 2\left([\quad] \times [\quad]\right) = [\quad]$

Add to find the surface area.

The surface area is [\quad] + [\quad] + [\quad] or [\quad] square centimeters.

Check Your Progress Find the surface area of the rectangular prism.

3 ft

6 ft   2 ft
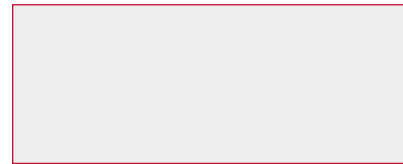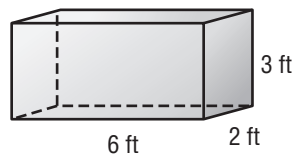
EXAMPLE

1 **PACKAGING** **A box measures 13 inches long, 7 inches wide, and 4 inches deep. What is the surface area of the box?**

$S = 2\ell w + 2\ell h + 2wh$ Surface area of a prism

$\ell = \boxed{}$, $w = \boxed{}$, $h = \boxed{}$.

$S = 2\left(\boxed{} \times \boxed{}\right) + 2\left(\boxed{} \times \boxed{}\right) + 2\left(\boxed{} \times \boxed{}\right)$

$S = 2\left(\boxed{}\right) + 2\left(\boxed{}\right) + 2\left(\boxed{}\right)$ Simplify within parentheses.

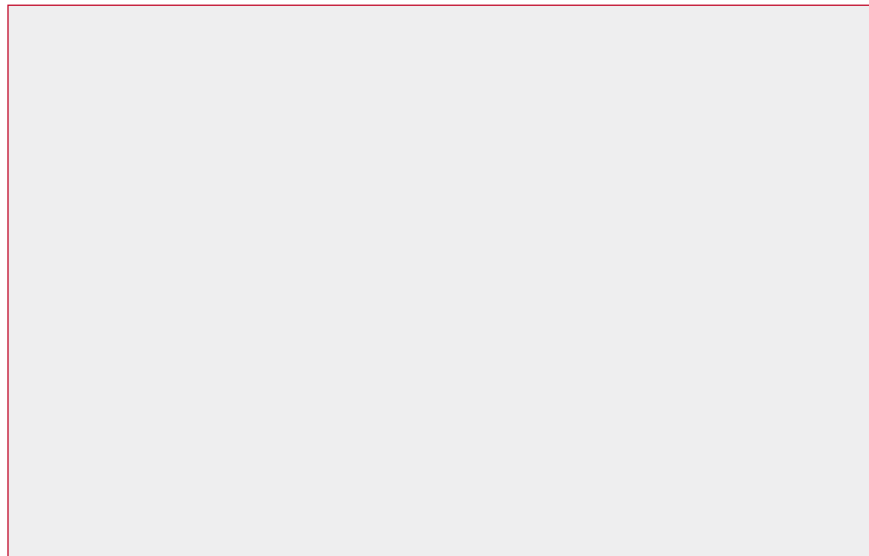$S = \boxed{} + \boxed{} + \boxed{}$ Multiply.

$S = \boxed{}$ Add.

The surface area of the box is $\boxed{}$.

Check Your Progress A box measures 9 inches long, 5 inches wide, and 12 inches deep. What is the surface area of the box?