

Lesson 6 Reteach

Surface Area of Prisms

The sum of the areas of all the surfaces, or faces, of a three-dimensional shape is the **surface area**. The surface area S.A. of a rectangular prism with length ℓ , width w , and height h is the sum of the areas of its faces.

$$S.A. = 2\ell w + 2\ell h + 2wh$$

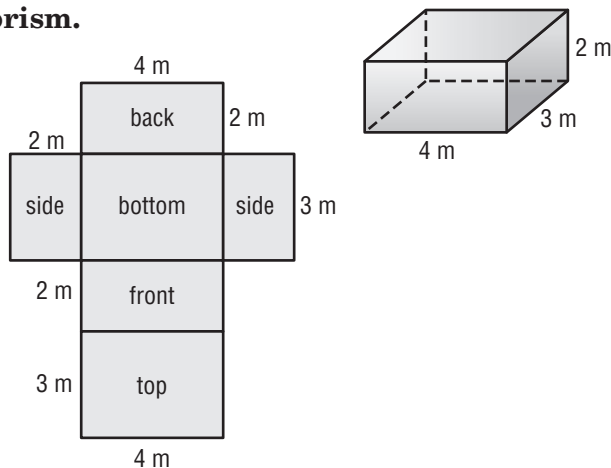
Example

Find the surface area of the rectangular prism.

Faces	Area
top and bottom	$2(4 \cdot 3) = 24$
front and back	$2(4 \cdot 2) = 16$
two sides	$2(2 \cdot 3) = 12$
sum of the areas	$24 + 16 + 12 = 52$

Alternatively, replace ℓ with 4, w with 3, and h with 2 in the formula for surface area.

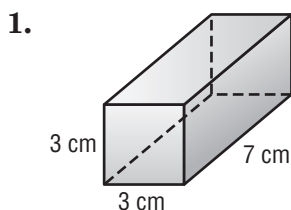
$$\begin{aligned} S.A. &= 2\ell w + 2\ell h + 2wh \\ &= 2(4 \cdot 3) + 2(4 \cdot 2) + 2(3 \cdot 2) \\ &= 24 + 16 + 12 \\ &= 52 \end{aligned}$$



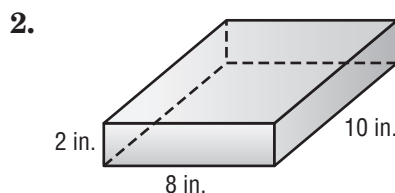
So, the surface area of the rectangular prism is 52 square meters.

Exercises

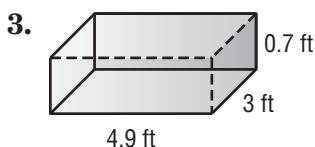
Find the surface area of each prism.



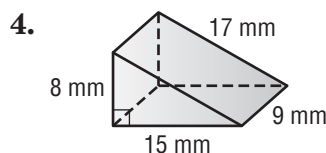
$$=79 \text{ cm}$$



$$=148 \text{ in}$$



$$=33.59 \text{ ft}$$



$$=552 \text{ mm}$$