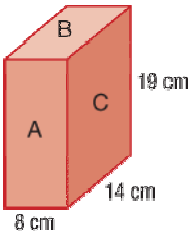
Lesson 4-9

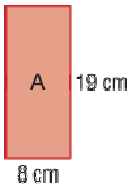
Example 1

Find the surface area of the rectangular prism.

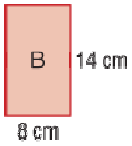


Solution

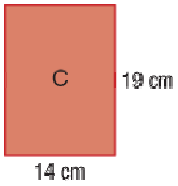
Area of A
$A = \square \cdot w$
$A = 19 \cdot 8$
$A = 152$



Area of B
$A = \square \cdot w$
$A = 14 \cdot 8$
$A = 112$



Area of C
$A = \square \cdot w$
$A = 19 \cdot 14$
$A = 266$



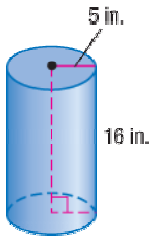
A rectangular prism has 6 faces. Add the areas of all the faces.

$SA = (2 \cdot 152) + (2 \cdot 112) + (2 \cdot 266)$
$SA = 304 + 224 + 532$
$SA = 1060$

The surface area of the rectangular prism is 1060 cm^2.

Example 2

Find the surface area of the cylinder. Use $\pi \approx 3.14$. Round to the nearest whole number.



Solution

First, find the area of the curved surface of the cylinder. When "unrolled," this surface is a rectangle with length equal to the circumference of the circle. The width of the rectangle is equal to the height of the cylinder.

$A = 2\pi r \cdot h$
$A \approx 2(3.14)(5) \cdot 16$
$A \approx 502.4$

Find the area of the base. Multiply by 2.

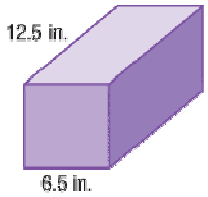
$A = \pi r^2$
$A \approx 3.14 \cdot 25$
$A \approx 78.5$
$2A \approx 2 \cdot 78.5$
$2A \approx 157$

Add the areas to find the surface area.
$SA \approx 502.4 + 157$
$SA \approx 659.4 \approx 659$

The surface area of the cylinder is about 659 in^2.

Example 3

LEISURE The figure represents a hollow child's wooden building block. Find the amount of wood on the surface.



Solution

You need to find the surface area of the block. There are two square bases and four rectangular sides.

The area of one base is $(6.5 \text{ in.})^2 = 42.25\text{in}^2$.
The area of one side is $(6.5 \text{ in.}) \cdot (12.5 \text{ in.}) = 81.25 \text{ in}^2$.

Adding twice the area of a base and four times the area of a side will give the total surface area of the block.

$SA = (2 \cdot 42.25) + (4 \cdot 81.25) = 409.5$

The amount of wood on the surface is about 410 in^2.