LESSON MAKER PRO

Shapes That Add Up

Find area, volume, and surface area.

HIGH SCHOOL · FA.G.39

FA.G.39 "Solve real-world and mathematical problems involving two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (7.G.6)"

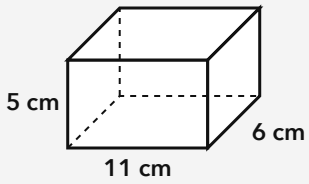
NAME _____ DATE _____

CHOOSE THE MEASUREMENT

A rectangle's area is length × width, and a triangle's area is half its base × height. A right prism's volume is the area of its base × its height. To find surface area, add the areas of every outside face.

WORKED EXAMPLE

Find the surface area of the closed box shown.

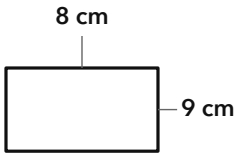


1. The three pairs of faces have areas 11 × 6, 11 × 5, and 6 × 5.
2. Add both of each face: 2 × (66 + 55 + 30).
3. 2 × 151 = 302.

Answer: 302 cm²

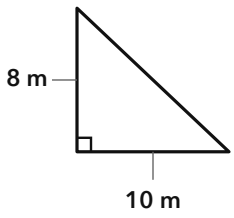
PRACTICE 6 problems

1 Find the area of the rectangle.



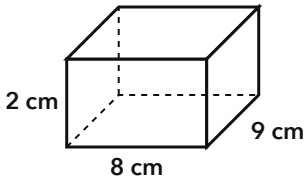
ANSWER _____

2 Find the area of the right triangle.



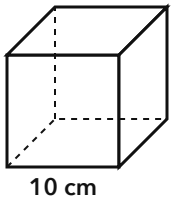
ANSWER _____

3 Find the volume of the prism.



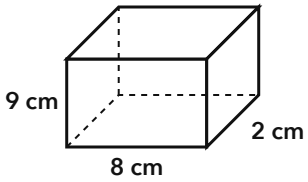
ANSWER _____

4 Find the volume of the cube.



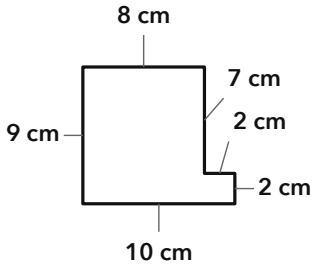
ANSWER _____

5 Find the surface area of the closed prism.



ANSWER _____

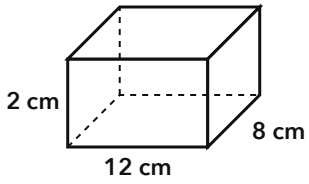
6 Find the area of the L-shaped figure.



ANSWER _____

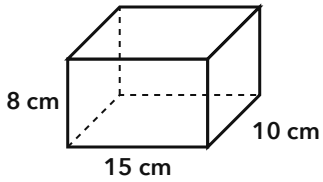
APPLY IT Show your work

1 A closed box for gaming cards has the dimensions shown. How much cardboard covers its outside? Ignore seams and overlaps.



ANSWER _____

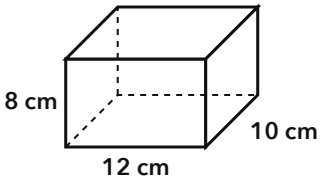
2 A rectangular storage bin for sports equipment has the inside dimensions shown. How much space does it hold?



ANSWER _____

CHALLENGE One step up

A closed prize box has the dimensions shown. Its height is increased by 2 cm, while its length and width stay the same. How many more square centimeters of cardboard are needed to cover its outside? Explain your reasoning.



WORK SPACE AND ANSWER

Shapes That Add Up

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the area of the rectangle.	**72 cm^2**
2	Find the area of the right triangle.	**40 m^2**
3	Find the volume of the prism.	**144 cm^3**
4	Find the volume of the cube.	**1,000 cm^3**
5	Find the surface area of the closed prism.	**212 cm^2**
6	Find the area of the L-shaped figure.	**76 cm^2**

PART 2 · APPLY IT

1. **272 cm^2** Add the areas of the three pairs of faces: $2 \times (12 \times 8 + 12 \times 2 + 8 \times 2) = 272$ cm^2.
2. **1,200 cm^3** Multiply the inside dimensions: $15 \times 10 \times 8 = 1{,}200$ cm^3.

CHALLENGE

88 cm^2. The top and bottom do not change. The four side faces gain a total area of $2 \times (12 \times 2) + 2 \times (10 \times 2) = 88$ cm^2.

Accept equivalent methods for the L-shaped area, including subtracting the missing rectangle from a larger rectangle. For the challenge, accept a correct comparison of the old and new surface areas.