LESSON MAKER PRO

Cover That Box

Find the area covering boxes and blocks.

GRADE 7 · 7.G.6

7.G.6 "Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals and polygons including cubes, right prisms, and pyramids."

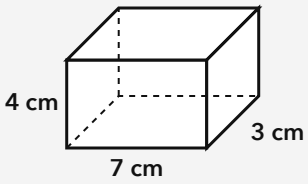
NAME _____ DATE _____

COUNT THE FACES

Surface area is the total area of a solid's outside faces. A rectangular prism has three pairs of matching faces, so surface area = 2(l × w + l × h + w × h). If a face will not be covered, leave its area out of the total.

WORKED EXAMPLE

Find the surface area of the prism shown.

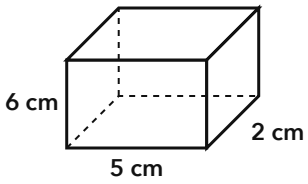


1. Find the three face areas: 7 × 3 = 21, 7 × 4 = 28, and 3 × 4 = 12.
2. Double each area because each face has a matching face: 42 + 56 + 24.
3. Add: 42 + 56 + 24 = 122.

Answer: 122 cm²

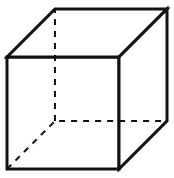
PRACTICE 6 problems

1 Find the surface area of the prism shown.



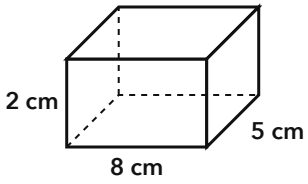
ANSWER _____

2 Find the surface area of the cube shown.



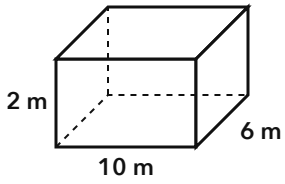
ANSWER _____

3 Find the surface area of the prism shown.



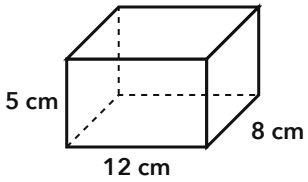
ANSWER _____

4 Find the surface area of the prism shown.



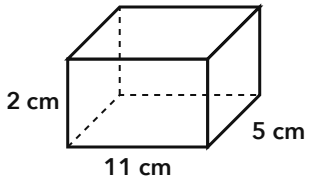
ANSWER _____

5 Find the surface area of the prism shown.



ANSWER _____

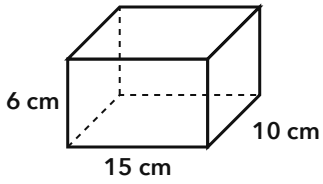
6 The prism shown rests on a shelf. Find the area of its five exposed faces. The bottom face is not exposed.



ANSWER _____

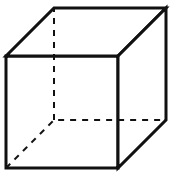
APPLY IT Show your work

1 A video game club wraps the closed prize box shown. How much paper covers the box if the paper does not overlap?



ANSWER _____

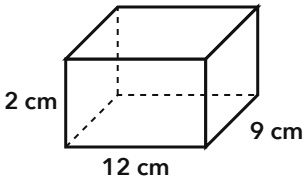
2 You paint the outside of the cube-shaped display block shown for an art fair, but not its bottom face. How many square centimeters do you paint?



ANSWER _____

CHALLENGE One step up

The prism shown has the same volume as a cube. Find the cube's side length. Then find which solid has less surface area and by how much. Show both surface areas.



WORK SPACE AND ANSWER

Cover That Box

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the surface area of the prism shown.	**104 cm^2**
2	Find the surface area of the cube shown.	**486 cm^2**
3	Find the surface area of the prism shown.	**132 cm^2**
4	Find the surface area of the prism shown.	**184 m^2**
5	Find the surface area of the prism shown.	**392 cm^2**
6	The prism shown rests on a shelf. Find the area of its five exposed faces. The bottom face is not exposed.	**119 cm^2**

PART 2 · APPLY IT

1. **600 cm^2** Add the areas of the three face pairs: $2(15 \times 10 + 15 \times 6 + 10 \times 6) = 600$ cm^2.
2. **320 cm^2** Each face has an area of $8 \times 8 = 64$ cm^2. Paint five faces, so $5 \times 64 = 320$ cm^2.

CHALLENGE

The prism's volume is $12 \times 9 \times 2 = 216$ cm^3, so the cube's side length is 6 cm. The prism's surface area is 300 cm^2, and the cube's is 216 cm^2. The cube has 84 cm^2 less surface area.

Accept an equivalent calculation that counts each exposed face once. For the challenge, students must compare surface areas, not volumes.