LESSON MAKER PRO

Cover Every Face

Find the area of rectangular prism surfaces.

GRADE 6 · 6.GM.B

6.GM.B "Solve real-world and mathematical problems to determine area, surface area, and volume."

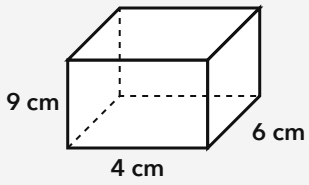
NAME _____ DATE _____

COUNT THE FACES

A rectangular prism has three pairs of matching faces. Find the area of one face in each pair, then double and add: surface area = 2(lw + lh + wh). If a face is left uncovered, subtract its area from the total.

WORKED EXAMPLE

Find the surface area of the rectangular prism.

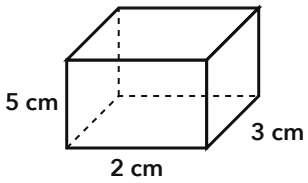


1. Top and bottom: 4 × 6 = 24 cm^2 each.
2. Front and back: 4 × 9 = 36 cm^2 each.
3. Left and right: 6 × 9 = 54 cm^2 each.
4. Total: 2(24 + 36 + 54) = 228 cm^2.

Answer: 228 cm^2

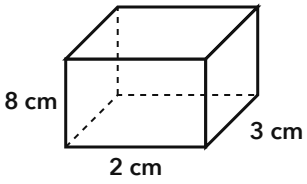
PRACTICE 6 problems

1 Find the surface area of the prism.



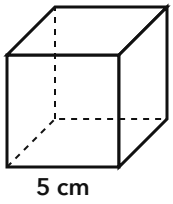
ANSWER _____

2 Find the total area of the side faces. Do not include the top or bottom.



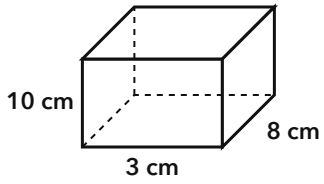
ANSWER _____

3 Find the surface area of the cube.



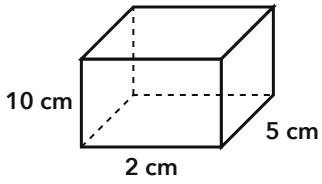
ANSWER _____

4 Find the outside area of this box if it has no top.



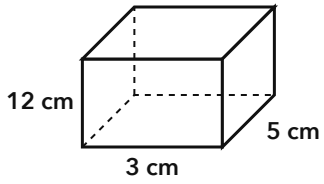
ANSWER _____

5 Find the surface area of the prism.



ANSWER _____

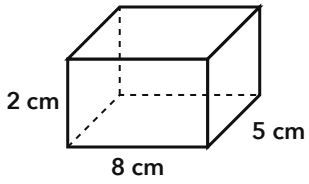
6 Find the surface area of the prism.



ANSWER _____

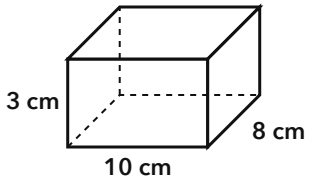
APPLY IT Show your work

1 You wrap two identical board game boxes shaped like the figure. How many square centimeters of paper cover all faces of both boxes? Ignore overlap.



ANSWER _____

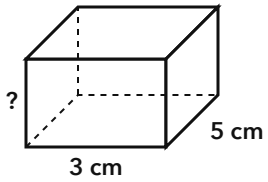
2 You paint the outside of a storage box shaped like the figure. You paint the top and side faces, but not the bottom. What area do you paint?



ANSWER _____

CHALLENGE One step up

This prism has a surface area of 158 cm^2. Find its height and show how you know.



WORK SPACE AND ANSWER

ANSWER KEY

Cover Every Face

GRADE 6 · 6.GM.B

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the surface area of the prism.	**62 cm²**
2	Find the total area of the side faces. Do not include the top or bottom.	**80 cm²**
3	Find the surface area of the cube.	**150 cm²**
4	Find the outside area of this box if it has no top.	**244 cm²**
5	Find the surface area of the prism.	**160 cm²**
6	Find the surface area of the prism.	**222 cm²**

PART 2 · APPLY IT

1. **264 cm²** One box has a surface area of $2(8 \times 5 + 8 \times 2 + 5 \times 2) = 132$ cm^2. Double that for two boxes.
2. **188 cm²** The surface area is $2(10 \times 8 + 10 \times 3 + 8 \times 3) = 268$ cm^2. Subtract the 80 cm^2 bottom.

CHALLENGE

8 cm; $2(3 \times 5 + 3 \times 8 + 5 \times 8) = 158$ cm².

Accept any correct method that counts each covered face once. For the challenge, the height must be given in centimeters and checked against the total surface area.