LESSON MAKER PRO

Wrap Every Face

Count the square units on a rectangular prism.

GRADE 7 · 7.GM.1.2

7.GM.1.2 "Using a variety of tools and strategies, develop the concept that surface area of a rectangular prism can be found by wrapping the figure with same-sized square units without gaps or overlap. Use appropriate measurements (e.g., cm²)."

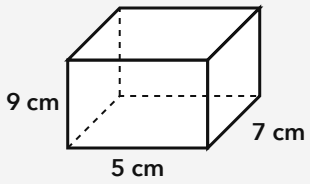
NAME _____ DATE _____

COVER WITHOUT GAPS

Surface area is the area of all six outside faces of a rectangular prism. Imagine wrapping it with same-sized square units, with no gaps or overlaps. Each pair of opposite faces has the same area, so find three face areas, add them, and double the sum.

WORKED EXAMPLE

Find the surface area of the prism shown.

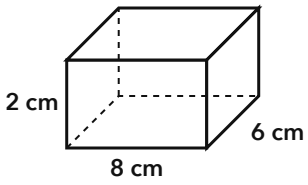


1. One pair of faces: 5 × 7 = 35 cm² per face.
2. Another pair: 5 × 9 = 45 cm² per face.
3. The last pair: 7 × 9 = 63 cm² per face.
4. Double the sum: 2(35 + 45 + 63) = 286 cm².

Answer: 286 cm²

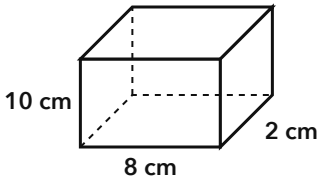
PRACTICE 6 problems

1 Find the surface area of the prism shown. Include units.



ANSWER _____

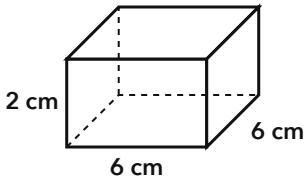
2 Find the combined area of the two faces with edges labeled l and w. Then find the total surface area. Include units for both answers.



ANSWER _____

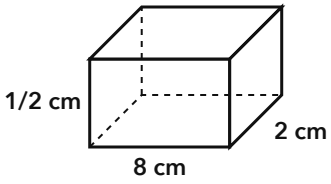
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3 How many 1 cm² squares would cover every face of the prism shown without gaps or overlaps?



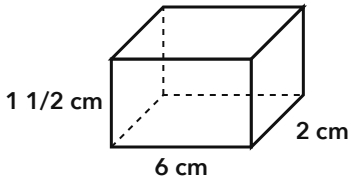
ANSWER _____

4 Find the surface area of the prism shown. Include units.



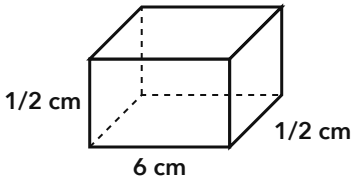
ANSWER _____

5 Find the surface area of the prism shown. Include units.



ANSWER _____

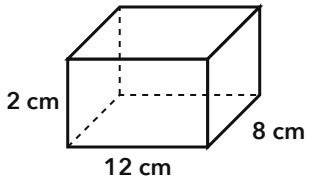
6 Find the surface area of the prism shown. Include units.



ANSWER _____

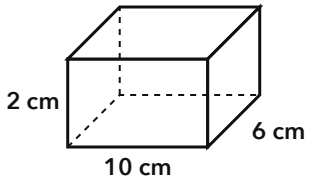
APPLY IT Show your work

1 You want to cover every outside face of the game box shown with sticker paper. The paper must fit without gaps or overlaps. How many square centimeters of paper do you need?



ANSWER _____

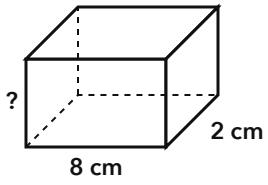
2 You are painting a display block for a mini collectible. Paint the top and four side faces, but not the bottom. How many square centimeters will you paint?



ANSWER _____

CHALLENGE One step up

The surface area of the prism shown is 112 cm². Find its missing height. Explain how pairs of equal faces help you find it.



WORK SPACE AND ANSWER

ANSWER KEY

Wrap Every Face

GRADE 7 · 7.GM.1.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the surface area of the prism shown. Include units.	**152 cm²**
2	Find the combined area of the two faces with edges labeled l and w. Then find the total surface area. Include units for both answers.	**Area of the two l-by-w faces: 32 cm²; total surface area: 232 cm²**
3	How many 1 cm² squares would cover every face of the prism shown without gaps or overlaps?	**120 squares**
4	Find the surface area of the prism shown. Include units.	**42 cm²**
5	Find the surface area of the prism shown. Include units.	**48 cm²**
6	Find the surface area of the prism shown. Include units.	**12 1/2 cm²**

PART 2 · APPLY IT

1. **272 cm²** Find the areas of three different faces and double their sum: $2(12 \times 8 + 12 \times 2 + 8 \times 2) = 272$ cm².
2. **124 cm²** The top is $10 \times 6 = 60$ cm². The four sides total $2(10 \times 2) + 2(6 \times 2) = 64$ cm², so the painted area is 124 cm².

CHALLENGE

4 cm. The two 8 cm by 2 cm faces have a combined area of 32 cm², leaving 80 cm² for the other four faces. Those faces have a combined area of 2(8h + 2h) = 20h, so h = 4 cm.

Accept equivalent fraction or decimal forms of the correct areas. In the challenge, accept any explanation that accounts for all three pairs of faces.