

Measure Mission

Find area, volume, and surface area in different situations.

GRADE 6 • 6.GSR.5

6.GSR.5 "Solve relevant problems involving area, surface area, and volume."

NAME _____

DATE _____

CHOOSE THE MEASURE

Area measures the space inside a flat shape. Volume measures the space inside a solid, and surface area measures the total area of all the outside faces. Use the dimensions and units to decide which measure you need.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 7 units long, 4 units wide, and 3 units high.

1. Use volume = length x width x height.

2. $7 \times 4 \times 3 = 28 \times 3$.

3. $28 \times 3 = 84$.

Answer: 84 cubic units

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism that is 5 cm long, 6 cm wide, and 8 cm high.

ANSWER _____

- 2** Find the area of a rectangle that is 9 m long and 12 m wide.

ANSWER _____

- 3** Find the total surface area of a rectangular prism that is 10 in. long, 5 in. wide, and 6 in. high.

ANSWER _____

- 4** Find the area of a triangle with a base of 14 yd and a height of 10 yd.

ANSWER _____

- 5** Find the volume of a rectangular prism that is 9 ft long, 8 ft wide, and 5 ft high.

ANSWER _____

- 6** A cube has an edge length of 6 mm. Find its total surface area.

ANSWER _____

APPLY IT Show your work

- 1** You want to cover the top of a rectangular gaming desk with a desk mat. The desk is 15 inches long and 8 inches wide. What area will the desk mat cover?

WORK SPACE

ANSWER _____

- 2** A student wants to decorate every outside face of a rectangular prize box. The box is 11 inches long, 8 inches wide, and 5 inches high. How much paper is needed to cover the box?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A school is making an L-shaped gaming zone from an 18 ft by 12 ft rectangle. A 6 ft by 5 ft corner is reserved for shelves and is not part of the gaming zone. What is the area of the gaming zone? Explain how you found it.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 5 cm long, 6 cm wide, and 8 cm high.	240 cubic cm
2	Find the area of a rectangle that is 9 m long and 12 m wide.	108 square m
3	Find the total surface area of a rectangular prism that is 10 in. long, 5 in. wide, and 6 in. high.	280 square in.
4	Find the area of a triangle with a base of 14 yd and a height of 10 yd.	70 square yd
5	Find the volume of a rectangular prism that is 9 ft long, 8 ft wide, and 5 ft high.	360 cubic ft
6	A cube has an edge length of 6 mm. Find its total surface area.	216 square mm

PART 2 • APPLY IT

- 120 square in.** Multiply the length by the width. $15 \times 8 = 120$.
- 366 square in.** Find the areas of the three face pairs: 11×8 , 11×5 , and 8×5 . Add them and multiply by 2: $2 \times (88 + 55 + 40) = 366$.

CHALLENGE

186 square ft; find the area of the large rectangle, $18 \times 12 = 216$, then subtract the shelf area, $6 \times 5 = 30$. $216 - 30 = 186$.

Accept equivalent unit wording, such as square centimeters or cm^2 , and cubic centimeters or cm^3 . For surface area, accept correct work that adds all six faces or doubles the three different face areas.