

Shape Space Math

Find area and volume from measurements.

GRADE 6 • MA.6.GR.2

MA.6.GR.2 "Model and solve problems involving two-dimensional figures and three-dimensional figures."

NAME _____

DATE _____

AREA AND VOLUME

Area measures the flat space inside a 2D figure: for rectangles and parallelograms, multiply base x height, and for triangles, multiply base x height then divide by 2. Volume measures the space inside a rectangular prism, so multiply length x width x height.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 7 cm long, 6 cm wide, and 4 cm high.

1. $V = l \times w \times h$

2. $V = 7 \times 6 \times 4$

3. $V = 42 \times 4$

4. $V = 168$ cubic cm

Answer: 168 cubic cm

PRACTICE 6 problems

- 1** Find the area of a rectangle that is 9 cm long and 5 cm wide.

ANSWER _____

- 2** Find the area of a triangle with a base of 12 m and a height of 3 m.

ANSWER _____

- 3** Find the area of a parallelogram with a base of 8 in. and a height of 11 in.

ANSWER _____

- 4** Find the volume of a rectangular prism that is 3 cm long, 5 cm wide, and 2 cm high.

ANSWER _____

- 5** Find the volume of a rectangular prism that is 10 m long, 9 m wide, and 2 m high.

ANSWER _____

- 6** A cube has an edge length of 8 in. Find its volume.

ANSWER _____

APPLY IT Show your work

- 1** A student is making a cover image for a music playlist. The rectangular design is 13 inches wide and 9 inches tall. What is its area?

WORK SPACE

ANSWER _____

- 2** A game club stores cards in a rectangular box that is 12 inches long, 5 inches wide, and 3 inches high. What is the volume of the box?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

An L-shaped mural is made from an 18 ft by 9 ft rectangle and a 10 ft by 5 ft rectangle. The rectangles touch along an edge but do not overlap. Find the total area of the mural. Explain how you know no area was counted twice.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the area of a rectangle that is 9 cm long and 5 cm wide.	45 square cm
2	Find the area of a triangle with a base of 12 m and a height of 3 m.	18 square m
3	Find the area of a parallelogram with a base of 8 in. and a height of 11 in.	88 square in.
4	Find the volume of a rectangular prism that is 3 cm long, 5 cm wide, and 2 cm high.	30 cubic cm
5	Find the volume of a rectangular prism that is 10 m long, 9 m wide, and 2 m high.	180 cubic m
6	A cube has an edge length of 8 in. Find its volume.	512 cubic in.

PART 2 • APPLY IT

1. **117 square inches** Multiply the width by the height: $13 \times 9 = 117$. The design has an area of 117 square inches.
2. **180 cubic inches** Multiply the three dimensions: $12 \times 5 \times 3 = 180$. The box has a volume of 180 cubic inches.

CHALLENGE

212 square feet. The areas are $18 \times 9 = 162$ square feet and $10 \times 5 = 50$ square feet. Since the rectangles do not overlap, $162 + 50 = 212$ square feet.

Accept equivalent unit forms, such as cm^2 for square cm and in^3 for cubic in. For the challenge, accept any clear explanation that the two non-overlapping rectangle areas are added.