LESSON MAKER PRO

Shape Space Quest

Find area and volume with rational-number dimensions.

GRADE 6 · TEKS 6.8.D

6.8.D "determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers."

NAME _____ DATE _____

AREA AND VOLUME RULES

Use A = l x w for rectangles, A = b x h for parallelograms, A = 1/2 x b x h for triangles, and A = 1/2 x (b_1 + b_2) x h for trapezoids. Use V = l x w x h for a right rectangular prism, then label area in square units and volume in cubic units.

WORKED EXAMPLE

Find the area of a rectangle that is 1.7 m long and 2.4 m wide.

1. Use A = l x w.
2. A = 1.7 x 2.4.
3. A = 4.08.

Answer: 4.08 m^2

PRACTICE 6 problems

1 Find the area of a rectangle with a length of 3/4 ft and a width of 8/3 ft.

ANSWER _____

2 Find the area of a triangle with a base of 9/2 cm and a height of 4/3 cm.

ANSWER _____

3 Find the area of a parallelogram with a base of 7/2 in. and a height of 6/5 in.

ANSWER _____

4 Find the area of a trapezoid with bases of 5/6 yd and 7/3 yd and a height of 3 yd.

ANSWER _____

5 Find the volume of a right rectangular prism with dimensions 3/2 cm, 4 cm, and 5/3 cm.

ANSWER _____

6 Find the volume of a right rectangular prism with dimensions 2/5 m, 9/4 m, and 8 m.

ANSWER _____

APPLY IT Show your work

1 Maya is covering a rectangular game-table top with a protective mat. The top is 2 1/2 ft long and 1 3/5 ft wide. What area of mat does she need?

WORK SPACE

ANSWER _____

2 The side panel of a skateboard ramp is shaped like a trapezoid. Its parallel sides are 4 1/2 ft and 2 1/2 ft, and its height is 3 ft. What is the area of the panel?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A right rectangular prism has a volume of 5 m^3. Its length is 3/4 m, and its width is 2 2/3 m. What is its height? Show an equation that supports your answer.

WORK SPACE AND ANSWER

ANSWER KEY

Shape Space Quest

GRADE 6 · TEKS 6.8.D

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the area of a rectangle with a length of 3/4 ft and a width of 8/3 ft.	**2 ft^2**
2	Find the area of a triangle with a base of 9/2 cm and a height of 4/3 cm.	**3 cm^2**
3	Find the area of a parallelogram with a base of 7/2 in. and a height of 6/5 in.	**21/5 $in.^2$**
4	Find the area of a trapezoid with bases of 5/6 yd and 7/3 yd and a height of 3 yd.	**19/4 yd^2**
5	Find the volume of a right rectangular prism with dimensions 3/2 cm, 4 cm, and 5/3 cm.	**10 cm^3**
6	Find the volume of a right rectangular prism with dimensions 2/5 m, 9/4 m, and 8 m.	**36/5 m^3**

PART 2 · APPLY IT

1. **4 ft^2** Convert 2 1/2 to 5/2 and 1 3/5 to 8/5. Multiply 5/2 x 8/5 to get 4 square feet.
2. **21/2 ft^2** Add the parallel sides, then multiply by the height and divide by 2. The area is 21/2 square feet, or 10 1/2 square feet.

CHALLENGE

5/2 m

Accept equivalent fraction, mixed-number, or decimal forms, such as 21/5 or 4 1/5. Require square units for area and cubic units for volume.