LESSON MAKER PRO

Shape Space

Find areas and missing measures.

GRADE 6 · 6.GM.2.1

6.GM.2.1 "Develop and use formulas for the area of squares and parallelograms using a variety of methods including but not limited to the standard algorithms and finding unknown measures."

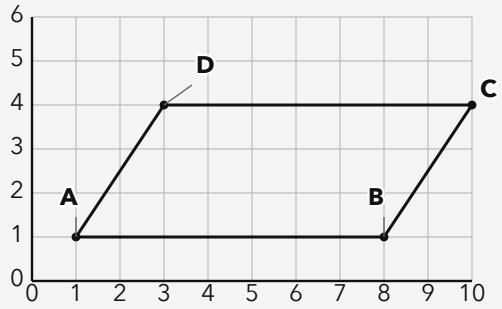
NAME _____ DATE _____

AREA RULES

To find a square's area, multiply its side length by itself. To find a parallelogram's area, multiply its base by its perpendicular height, not by its slanted side. If you know the area, work backward to find a missing measure.

WORKED EXAMPLE

Each grid step is 1 cm. What is the area of the figure?

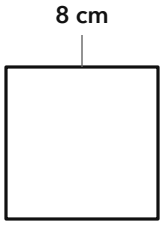


1. Count 7 cm along the base.
2. Count 3 cm straight up for the perpendicular height.
3. Area = base × height = 7 × 3 = 21 cm^2.

Answer: 21 cm^2

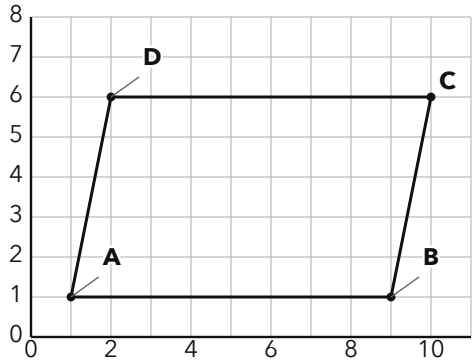
PRACTICE 6 problems

1 What is the area of the square?



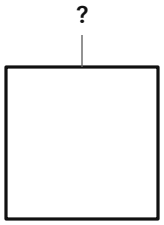
ANSWER _____

2 Each grid step is 1 cm. What is the area of the figure?



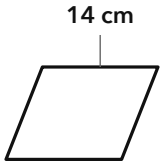
ANSWER _____

3 The square's area is 144 cm^2. What is its side length?



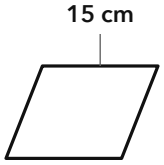
ANSWER _____

4 The parallelogram's perpendicular height is 6 cm. What is its area?



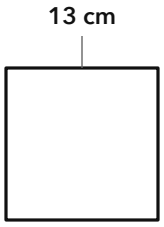
ANSWER _____

5 The parallelogram's area is 90 cm^2. What is its perpendicular height?



ANSWER _____

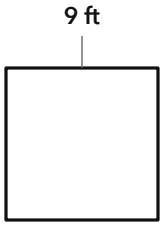
6 What is the area of the square?



ANSWER _____

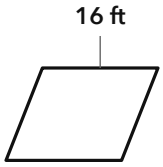
APPLY IT Show your work

1 A game club is covering the square play area shown with foam tiles. Tiles cost $4 for each square foot. How much will tiles for the entire area cost?



ANSWER _____

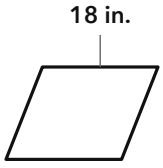
2 An art club is painting the parallelogram mural shown. Its perpendicular height is 9 ft. How many square feet will they paint?



ANSWER _____

CHALLENGE One step up

A square banner has a side length of 12 in. It has the same area as the parallelogram banner shown. Find the parallelogram's perpendicular height and explain your reasoning.



WORK SPACE AND ANSWER

ANSWER KEY

Shape Space

GRADE 6 · 6.GM.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is the area of the square?	**64 cm^2**
2	Each grid step is 1 cm. What is the area of the figure?	**40 cm^2**
3	The square's area is 144 cm^2. What is its side length?	**12 cm**
4	The parallelogram's perpendicular height is 6 cm. What is its area?	**84 cm^2**
5	The parallelogram's area is 90 cm^2. What is its perpendicular height?	**6 cm**
6	What is the area of the square?	**169 cm^2**

PART 2 · APPLY IT

1. **$324** The area is 9 × 9 = 81 ft^2. Multiply 81 by $4 to get $324.
2. **144 ft^2** Multiply the 16 ft base by the 9 ft perpendicular height to get 144 ft^2.

CHALLENGE

The square's area is 12 × 12 = 144 in^2. Since 18 × 8 = 144, the parallelogram's perpendicular height is 8 in.

Accept any correct method that uses the perpendicular height for a parallelogram. For the challenge, the explanation must show that both banners have an area of 144 in^2.