

Shape Area Lab

Split shapes into simpler pieces to find total area.

GRADE 6 • MA.6.GR.2.2

MA.6.GR.2.2 "Solve mathematical and real-world problems involving the area of quadrilaterals and composite figures by decomposing them into triangles or rectangles."

NAME _____

DATE _____

BUILD THE AREA

Split a quadrilateral or composite figure into rectangles and triangles. Find each piece's area, then add the areas, or subtract any cutout area.

WORKED EXAMPLE

A figure is made of a 7-unit by 3-unit rectangle and a triangle with base 7 units and height 2 units. Find its area.

1. Rectangle area = $7 \times 3 = 21$ square units.
2. Triangle area = $\frac{1}{2} \times 7 \times 2 = 7$ square units.
3. Total area = $21 + 7 = 28$ square units.

Answer: 28 square units

PRACTICE 5 problems

- 1** Find the area of a rectangle that is 11 cm long and 6 cm wide.

ANSWER _____

- 2** Find the area of a triangle with a base of 12 m and a height of 8 m.

ANSWER _____

- 3** Find the area of a rectangle that is 13 inches long and 4 inches wide.

ANSWER _____

- 4** A composite figure has a 10 cm by 9 cm rectangle and a triangle with base 10 cm and height 6 cm. Find the total area.

ANSWER _____

- 5** A trapezoid has bases of 16 m and 20 m and a height of 5 m. Split it into a rectangle and triangles. Find its area.

ANSWER _____

APPLY IT Show your work

- 1** The gaming club makes a backdrop with an 18-foot by 10-foot rectangle and a triangle on top. The triangle has a base of 18 feet and a height of 6 feet. How much fabric covers the backdrop?

WORK SPACE

ANSWER _____

- 2** A skateboard ramp has a painted side shaped like a trapezoid. Its bases are 22 feet and 14 feet, and its height is 9 feet. What is the area of the painted side?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A display board has an 18 cm by 14 cm rectangle with a triangle attached along its 18 cm side. The triangle's height is 10 cm. A 6 cm by 4 cm rectangular window is cut out of the rectangle. What is the area of the board?

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the area of a rectangle that is 11 cm long and 6 cm wide.	66 square centimeters
2	Find the area of a triangle with a base of 12 m and a height of 8 m.	48 square meters
3	Find the area of a rectangle that is 13 inches long and 4 inches wide.	52 square inches
4	A composite figure has a 10 cm by 9 cm rectangle and a triangle with base 10 cm and height 6 cm. Find the total area.	120 square centimeters
5	A trapezoid has bases of 16 m and 20 m and a height of 5 m. Split it into a rectangle and triangles. Find its area.	90 square meters

PART 2 • APPLY IT

- 234 square feet** Add the rectangle area, $18 \times 10 = 180$, and the triangle area, $\frac{1}{2} \times 18 \times 6 = 54$.
- 162 square feet** Split the trapezoid into a rectangle and triangles, or use $\frac{1}{2} \times (22 + 14) \times 9 = 162$.

CHALLENGE

318 square centimeters

Accept equivalent work that correctly adds the areas of rectangles and triangles and subtracts the cutout in the challenge. Accept square-unit notation or written square units.