

Shape Area Lab

Break shapes apart to find their areas.

GRADE 6 • NY-6.G.1

NY-6.G.1 "Find area of triangles, trapezoids, and other polygons by composing into rectangles or decomposing into triangles and quadrilaterals. Apply these techniques in the context of solving real-world and mathematical problems."

NAME _____

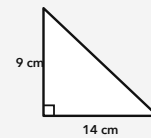
DATE _____

SPLIT AND ADD AREAS

Find the area of a triangle with $A = (b \times h) / 2$. For a trapezoid, average the two parallel bases, then multiply by the height. Split a composite polygon into rectangles and triangles, find each area, and add or subtract.

WORKED EXAMPLE

Find the area of the right triangle shown.

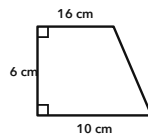


1. Use $A = (b \times h) / 2$.
2. Multiply the perpendicular legs: $14 \times 9 = 126$.
3. Divide by 2: $126 / 2 = 63$.

Answer: 63 cm²

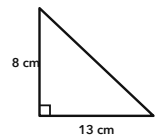
PRACTICE 6 problems

- 1** Find the area of the right trapezoid shown.



ANSWER _____

- 2** Find the area of the right triangle shown.



ANSWER _____

- 3** A parallelogram has a base of 15 cm and a perpendicular height of 7 cm. Find its area.

ANSWER _____

- 4** A trapezoid has parallel bases of 11 m and 17 m. Its height is 4 m. Find its area.

ANSWER _____

- 5** A polygon is made from a 12 cm by 5 cm rectangle and a triangle with base 12 cm and height 6 cm. Find the total area.

ANSWER _____

- 6** A shape is made from a 20 m by 3 m rectangle and a triangle with base 20 m and height 5 m. Find the total area.

ANSWER _____

APPLY IT Show your work

- 1** A skateboard ramp has a side panel shaped like a trapezoid. Its parallel sides are 18 in. and 26 in., and its perpendicular height is 12 in. What is the area of the side panel?

WORK SPACE

ANSWER _____

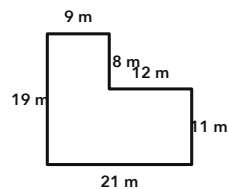
- 2** The esports club makes a poster from a 24 cm by 16 cm rectangle with a triangle on top. The triangle has a base of 24 cm and a height of 10 cm. How much paper is in the poster?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The L-shaped patio is shown. Find its area by subtracting the missing rectangle from the outside rectangle.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the area of the right trapezoid shown.	78 cm²
2	Find the area of the right triangle shown.	52 cm²
3	A parallelogram has a base of 15 cm and a perpendicular height of 7 cm. Find its area.	105 cm²
4	A trapezoid has parallel bases of 11 m and 17 m. Its height is 4 m. Find its area.	56 m²
5	A polygon is made from a 12 cm by 5 cm rectangle and a triangle with base 12 cm and height 6 cm. Find the total area.	96 cm²
6	A shape is made from a 20 m by 3 m rectangle and a triangle with base 20 m and height 5 m. Find the total area.	110 m²

PART 2 • APPLY IT

1. **264 in²** Average the parallel sides: $(18 + 26) / 2 = 22$. Multiply by the height: $22 \times 12 = 264$.
2. **504 cm²** The rectangle area is $24 \times 16 = 384 \text{ cm}^2$, and the triangle area is $(24 \times 10) / 2 = 120 \text{ cm}^2$. Add the areas to get 504 cm².

CHALLENGE

303 m²

Accept any correct decomposition or subtraction method. For the challenge, the outside rectangle is 21 m by 19 m and the missing rectangle is 12 m by 8 m, so $399 - 96 = 303 \text{ m}^2$.