

Shape Splitters

Break apart polygons to find total area.

GRADE 7 • MA.7.GR.1.2

MA.7.GR.1.2 "Solve mathematical or real-world problems involving the area of polygons or composite figures by decomposing them into triangles or quadrilaterals."

NAME _____

DATE _____

SPLIT AND ADD

Split a composite figure into rectangles, parallelograms, or triangles. Find the area of each part, then add included parts or subtract a cut-out.

WORKED EXAMPLE

An L-shaped figure is a 12-unit by 9-unit rectangle with a 4-unit by 3-unit corner removed. Find its area.

1. Outer rectangle: $12 \times 9 = 108$

2. Removed corner: $4 \times 3 = 12$

3. Subtract: $108 - 12 = 96$

Answer: 96 square units

PRACTICE 5 problems

- 1** Find the area of a triangle with base 8 units and height 7 units.

ANSWER _____

- 2** Find the area of a parallelogram with base 11 units and height 5 units.

ANSWER _____

- 3** A shape has a 10-unit by 6-unit rectangle and a triangle attached along a 10-unit side. The triangle's height is 2 units. Find the total area.

ANSWER _____

- 4** An L-shaped figure is a 14-unit by 13-unit rectangle with a 5-unit by 2-unit corner removed. Find its area.

ANSWER _____

- 5** Find the area of a trapezoid with bases 16 units and 10 units and height 7 units.

ANSWER _____

APPLY IT Show your work

- 1** The gaming club is planning an L-shaped booth floor. It fits inside a 20-ft by 15-ft rectangle, but a 6-ft by 5-ft corner is not part of the booth. How many square feet of floor covering are needed?

WORK SPACE

ANSWER _____

- 2** Student council is painting a mural shaped like an 18-ft by 8-ft rectangle with a triangle attached along an 18-ft side. The triangle's height is 6 ft. What is the mural's area?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A concert platform is made from a 22-m by 14-m rectangle and two congruent triangles. Each triangle has base 14 m and height 7 m. What is the total area of the platform?

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the area of a triangle with base 8 units and height 7 units.	28 square units
2	Find the area of a parallelogram with base 11 units and height 5 units.	55 square units
3	A shape has a 10-unit by 6-unit rectangle and a triangle attached along a 10-unit side. The triangle's height is 2 units. Find the total area.	70 square units
4	An L-shaped figure is a 14-unit by 13-unit rectangle with a 5-unit by 2-unit corner removed. Find its area.	172 square units
5	Find the area of a trapezoid with bases 16 units and 10 units and height 7 units.	91 square units

PART 2 • APPLY IT

- 270 square feet** Find the outer rectangle area, $20 \times 15 = 300$. Subtract the missing corner, $6 \times 5 = 30$, for 270 square feet.
- 198 square feet** The rectangle has area $18 \times 8 = 144$. The triangle has area $18 \times 6 / 2 = 54$, so the total is 198 square feet.

CHALLENGE

406 square meters

Accept correct decompositions and equivalent calculations. Require square units or the stated square-foot or square-meter units.