

Composite Area Lab

Break apart, add, and subtract areas.

GRADE 7 • TEKS 7.9.C

7.9.C "determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; and"

NAME _____

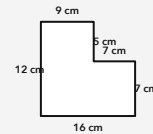
DATE _____

BUILD THE TOTAL AREA

Split a composite figure into shapes whose areas you know, then add the parts. You can also find a large rectangle or square and subtract any missing pieces.

WORKED EXAMPLE

Find the area of the L-shaped figure.

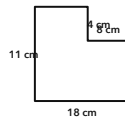


1. Treat the figure as a 16 cm by 12 cm rectangle with a 7 cm by 5 cm rectangle missing.
2. $16 \times 12 = 192 \text{ cm}^2$.
3. $7 \times 5 = 35 \text{ cm}^2$, so $192 - 35 = 157 \text{ cm}^2$.

Answer: 157 cm²

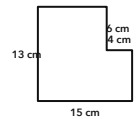
PRACTICE 6 problems

- 1** Find the area of the L-shaped figure.



ANSWER _____

- 2** Find the area of the L-shaped figure.



ANSWER _____

- 3** A 20 cm by 8 cm rectangle has a semicircle attached to one 8 cm side. Find the total area. Leave your answer in terms of π .

ANSWER _____

- 4** A 13 m by 10 m rectangle is joined to a trapezoid along the trapezoid's 13 m base. The trapezoid has bases of 13 m and 19 m and a height of 3 m. Find the total area.

ANSWER _____

- 5** A square with side length 6 ft has a triangle attached along one side. The triangle has a base of 6 ft and a height of 10 ft. Find the total area.

ANSWER _____

- 6** A quarter circle with radius 11 in is attached outside one 11 in side of a 17 in by 11 in rectangle. Find the total area. Leave your answer in terms of π .

ANSWER _____

APPLY IT Show your work

- 1** The gaming club makes a banner from a 24 in by 15 in rectangle and one triangular pointed end. The triangle is attached along the 24 in side of the rectangle and has a height of 8 in. What is the area of the banner?

WORK SPACE

ANSWER _____

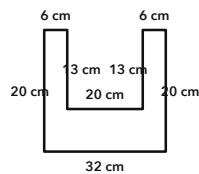
- 2** A skate park design has a rectangular practice surface that is 18 ft by 10 ft. A trapezoid section is attached along its 18 ft side. The trapezoid has bases of 18 ft and 28 ft and a height of 6 ft. What is the total area of the design?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The U-shaped patio shown has the labeled dimensions. Find its area and explain how you found it.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the area of the L-shaped figure.	166 cm²
2	Find the area of the L-shaped figure.	171 cm²
3	A 20 cm by 8 cm rectangle has a semicircle attached to one 8 cm side. Find the total area. Leave your answer in terms of n .	160 + 8n cm²
4	A 13 m by 10 m rectangle is joined to a trapezoid along the trapezoid's 13 m base. The trapezoid has bases of 13 m and 19 m and a height of 3 m. Find the total area.	178 m²
5	A square with side length 6 ft has a triangle attached along one side. The triangle has a base of 6 ft and a height of 10 ft. Find the total area.	66 ft²
6	A quarter circle with radius 11 in is attached outside one 11 in side of a 17 in by 11 in rectangle. Find the total area. Leave your answer in terms of n .	187 + 121n/4 in²

PART 2 • APPLY IT

- 456 in²** Find the rectangle area, $24 \times 15 = 360$. Add the triangle area, $1/2 \times 24 \times 8 = 96$, for a total of 456 in².
- 318 ft²** The rectangle area is $18 \times 10 = 180$ ft². The trapezoid area is $1/2 \times (18 + 28) \times 6 = 138$ ft², so the total is 318 ft².

CHALLENGE

380 cm², because $32 \times 20 - 20 \times 13 = 380$.

Accept equivalent area calculations. For items that say to leave the answer in terms of n , accept algebraically equivalent exact forms only.