LESSON MAKER PRO

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** _____

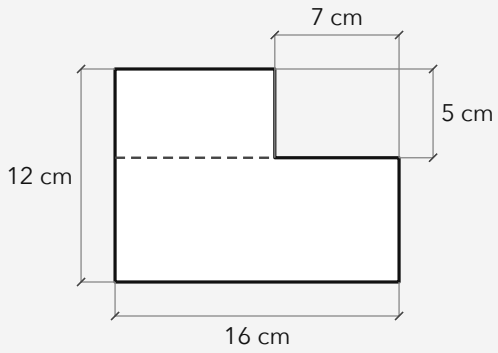
You will need: Pencil; Ruler

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. Draw partition lines on the figures when finding area. Show your area calculation. For perimeter, trace only the outside boundary. Use the bold outline for the shape; thin outside lines mark lengths.

WORKED EXAMPLE

Find the area of the L-shaped figure.

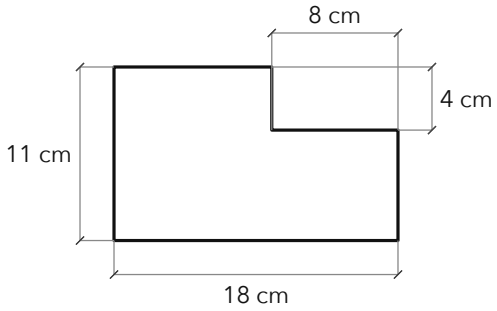


1. Treat the figure as a 16 cm by 12 cm rectangle with a 7 cm by 5 cm rectangle missing.
2. 16 x 12 = 192 cm².
3. 7 x 5 = 35 cm², so 192 - 35 = 157 cm².

Answer: 157 cm²

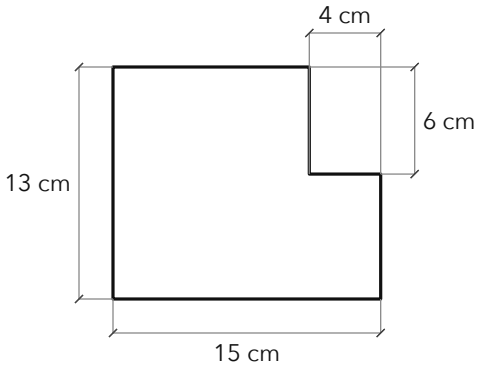
PRACTICE 6 problems

1 Find the area of the L-shaped figure.



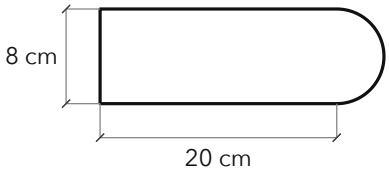
ANSWER _____

2 Find the area of the L-shaped figure.



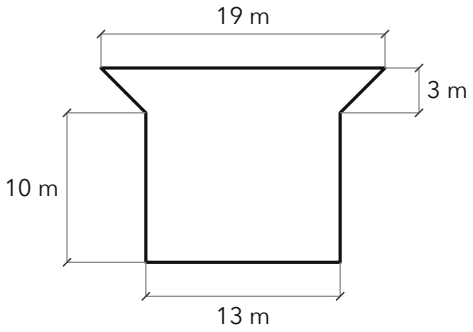
ANSWER _____

3 Find the area of the rectangle with an attached semicircle. Leave your answer in terms of π.



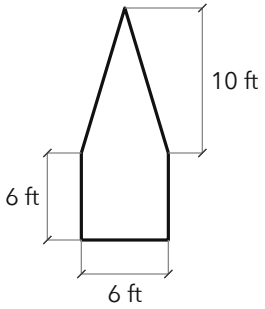
ANSWER _____

4 Find the total area of the rectangle and trapezoid.



ANSWER _____

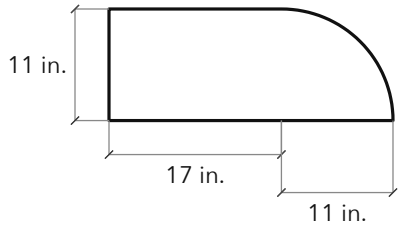
5 Find the area of the square with an attached triangle.



ANSWER _____

_____

6 A quarter circle is attached to the rectangle. Find the total area in terms of π.

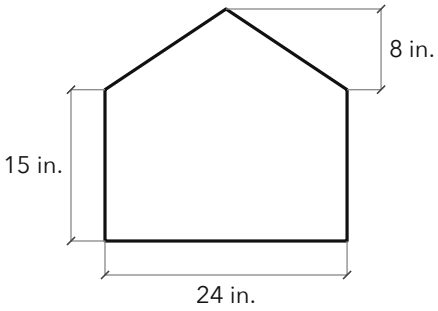


ANSWER _____

_____

APPLY IT Show your work

1 A gaming club makes the banner shown from a rectangle and triangular end. Find the total area. Show your calculation.



CALCULATION AND ANSWER

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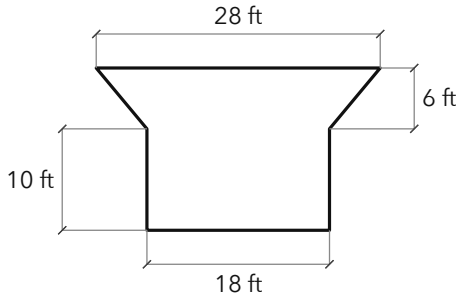
_____

2 The skate park shown combines a rectangular surface with a trapezoid. Find its total area. Show your calculation.



CALCULATION AND ANSWER

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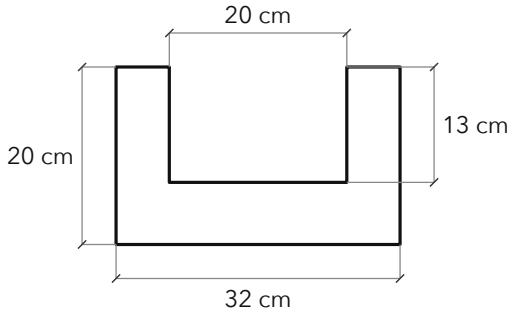
CHALLENGE One step up

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



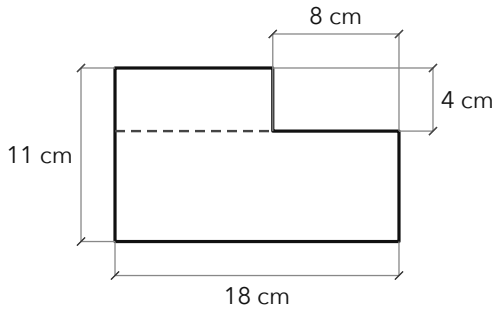
WORK SPACE AND ANSWER

Composite Area Lab

PRACTICE 1

Find the area of the L-shaped figure.

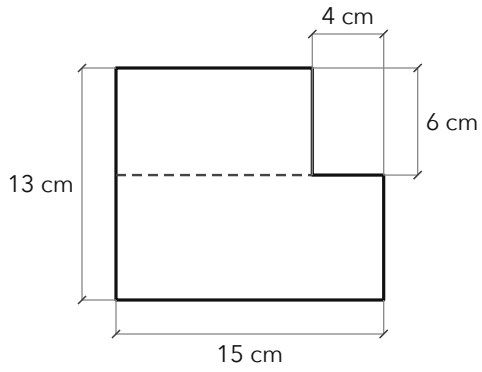
166 cm²



PRACTICE 2

Find the area of the L-shaped figure.

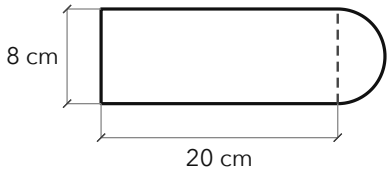
171 cm²



PRACTICE 3

Find the area of the rectangle with an attached semicircle. Leave your answer in terms of π.

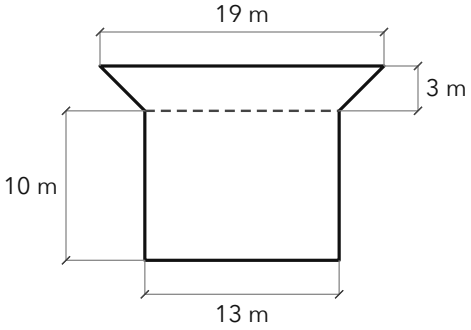
160 + 8π cm²



PRACTICE 4

Find the total area of the rectangle and trapezoid.

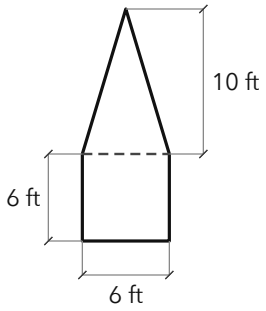
178 m²



PRACTICE 5

Find the area of the square with an attached triangle.

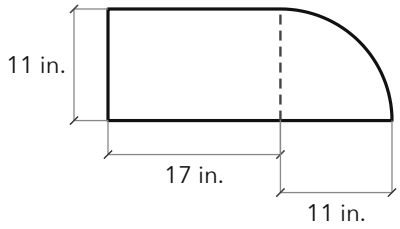
66 ft²



PRACTICE 6

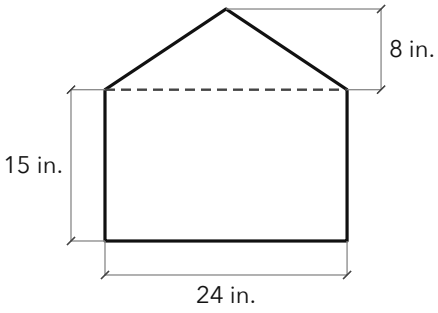
A quarter circle is attached to the rectangle. Find the total area in terms of π.

187 + 121π/4 in²



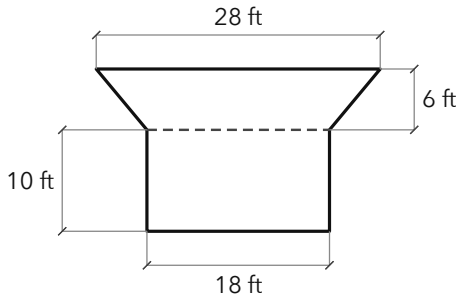
APPLY IT 1

456 in² Find the rectangle area, 24 x 15 = 360. Add the triangle area, 1/2 x 24 x 8 = 96, for a total of 456 in².



APPLY IT 2

318 ft² The rectangle area is 18 x 10 = 180 ft². The trapezoid area is 1/2 x (18 + 28) x 6 = 138 ft², so the total is 318 ft².



CHALLENGE

380 cm², because 32 x 20 - 20 x 13 = 380.

Accept equivalent area calculations. For items that say to leave the answer in terms of π, accept algebraically equivalent exact forms only. Dashed lines in the teacher diagrams show one valid partition. Accept other valid non-overlapping partitions with correct calculations. Outside measurement lines show horizontal or vertical distances; they are not extra sides of the shape.