

Edge Detective

Find the outside distance of composite figures.

GRADE 8 • 8.MG.5.b

8.MG.5.b "Subdivide a plane figure into triangles, rectangles, squares, trapezoids, parallelograms, and semicircles. Use the attributes of the subdivisions to determine the perimeter of the composite plane figure."

NAME _____

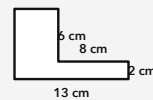
DATE _____

TRACE THE OUTSIDE

When a figure is split into smaller shapes, trace only the outside boundary. Add each exposed straight side once. For a semicircle, the curved edge is πr , and add its diameter only when the diameter is on the outside.

WORKED EXAMPLE

Find the perimeter of the L-shaped patio shown.

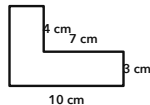


1. Top side: $13 - 8 = 5$ cm.
2. Left side: $2 + 6 = 8$ cm.
3. $P = 13 + 2 + 8 + 6 + 5 + 8 = 42$ cm.

Answer: 42 cm

PRACTICE 4 problems

- 1** Find the perimeter of the figure shown.

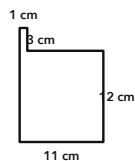


ANSWER _____

- 2** A 9 cm by 4 cm rectangle has a semicircle attached along a 4 cm side. Find its outer perimeter in exact form.

ANSWER _____

- 3** Find the perimeter of the figure shown.



ANSWER _____

- 4** A 15 cm by 9 cm rectangle has a 3 cm by 4 cm corner cut out. Find the perimeter of the new figure.

ANSWER _____

APPLY IT Show your work

- 1** An esports club makes a poster from a 14 in by 10 in rectangle with a semicircle attached along one 10 in side. How much border is needed? Give an exact answer.

WORK SPACE

ANSWER _____

- 2** A skate park ramp outline has an 18 ft by 12 ft rectangle. A triangle is attached along one 12 ft side, and its two exposed sides are 13 ft and 17 ft. Find the outside border length.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A podcast logo is made from a 16 cm by 6 cm rectangle. A semicircle is attached outward to each 6 cm side. Find the exact outer perimeter. In one sentence, explain why the two 6 cm sides are not added.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the perimeter of the figure shown.	34 cm
2	A 9 cm by 4 cm rectangle has a semicircle attached along a 4 cm side. Find its outer perimeter in exact form.	$22 + 2\pi$ cm
3	Find the perimeter of the figure shown.	52 cm
4	A 15 cm by 9 cm rectangle has a 3 cm by 4 cm corner cut out. Find the perimeter of the new figure.	48 cm

PART 2 • APPLY IT

- $38 + 5\pi$ in** Add the three exposed rectangle sides: $14 + 14 + 10 = 38$. The semicircle has radius 5, so its curved edge is 5π .
- 78 ft** The shared 12 ft side is inside the composite figure. Add $18 + 18 + 12 + 13 + 17$.

CHALLENGE

The perimeter is $32 + 6\pi$ cm because the two 6 cm sides are shared, not outside edges.

Accept equivalent reordered exact forms, such as $2\pi + 22$ cm. For exact-form questions, keep π rather than using a decimal approximation.