

Scale It Up

Find real sizes, areas, and new drawing sizes.

GRADE 7 • NY-7.G.1

NY-7.G.1 "Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale."

NAME _____

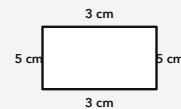
DATE _____

USE THE SCALE

Multiply a drawing length by the scale to find an actual length. To make a new drawing, first find the actual length, then divide by the new scale. For area, find both actual side lengths before multiplying.

WORKED EXAMPLE

A rectangular drawing is 3 cm by 5 cm. The scale is 1 cm = 4 m. Find the actual area.



1. $3 \times 4 = 12$, so one actual side is 12 m.
2. $5 \times 4 = 20$, so the other actual side is 20 m.
3. $12 \times 20 = 240$.

Answer: 240 m²

PRACTICE 4 problems

- 1** A trail is 7 cm long on a drawing. The scale is 1 cm = 6 m. What is the actual trail length?

ANSWER _____

- 2** A rectangular drawing measures 2 cm by 9 cm. The scale is 1 cm = 8 ft. What is the actual area?

ANSWER _____

- 3** A real path is 42 m long. A scale drawing uses 1 cm = 7 m. How long should the path be on the drawing?

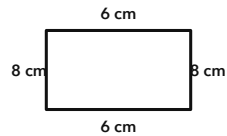
ANSWER _____

- 4** A wall is shown as 11 cm long at a scale of 1 cm = 8 m. Reproduce it using 1 cm = 11 m. How long is the wall on the new drawing?

ANSWER _____

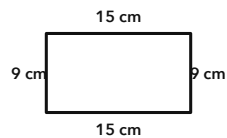
APPLY IT Show your work

- 1** For a school music festival, a planning drawing shows a rectangular activity field. The scale is 1 cm = 14 ft. What is the actual area of the field?



ANSWER _____

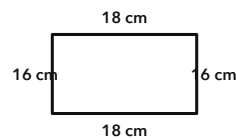
- 2** A game designer's level map is 15 cm by 9 cm at a scale of 1 cm = 10 m. The designer redraws it at 1 cm = 15 m. What are the new map dimensions?



ANSWER _____

CHALLENGE One step up

Drawing A is a rectangle 18 cm by 16 cm at a scale of 1 cm = 7 m. Drawing B shows the same park at a scale of 1 cm = 14 m. Find Drawing B's dimensions. Then explain why its paper area is one-fourth of Drawing A's paper area.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A trail is 7 cm long on a drawing. The scale is 1 cm = 6 m. What is the actual trail length?	42 m
2	A rectangular drawing measures 2 cm by 9 cm. The scale is 1 cm = 8 ft. What is the actual area?	1,152 ft²
3	A real path is 42 m long. A scale drawing uses 1 cm = 7 m. How long should the path be on the drawing?	6 cm
4	A wall is shown as 11 cm long at a scale of 1 cm = 8 m. Reproduce it using 1 cm = 11 m. How long is the wall on the new drawing?	8 cm

PART 2 • APPLY IT

- 9,408 ft²** The actual side lengths are 84 ft and 112 ft. Multiply 84×112 to get 9,408 ft².
- 10 cm by 6 cm** The actual dimensions are 150 m and 90 m. Divide each by 15 m per cm to get 10 cm and 6 cm.

CHALLENGE

9 cm by 8 cm. Each new length is half as long because 1 cm represents twice as much distance. Halving both side lengths makes the area one-fourth as large, from 288 cm² to 72 cm².

Accept equivalent area notation, such as square feet or ft². For the challenge, accept any correct explanation that both drawing lengths are halved, so the drawing area is multiplied by 1/4.