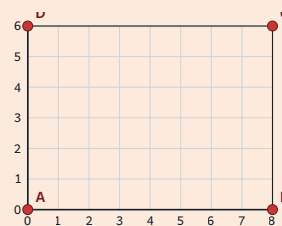


## Scale drawings and scale maps – small drawings of big things

MODULE 7 · DATA, CHANCE AND THE CO-ORDINATE PLANE SHAPE & SPACE

A **scale** tells us how many real units one paper unit stands for. A **1:100** scale means 1 cm on the page represents 100 cm (= 1 m) in real life. To convert: multiply the paper measurement by the scale's right-hand number.

- **1:100** plan, line **5 cm** long → real length =  $5 \times 100 = 500 \text{ cm} = 5 \text{ m}$ .
- **1:50,000** OS map, two points **3 cm** apart → real distance =  $3 \times 50,000 = 150,000 \text{ cm} = 1.5 \text{ km}$ .
- Drawing a room **8 m × 6 m** at **1:100** → paper rectangle **8 cm × 6 cm** (the ABCD grid above).



### CLASSROOM IS 8 M × 6 M – DRAW IT AT 1:100 SCALE

- 1 **1:100** means 1 cm on paper = 100 cm (1 m) in real life.
- 2 8 m → paper length =  $8 \times 1 \text{ cm} = 8 \text{ cm}$ .
- 3 6 m → paper width =  $6 \times 1 \text{ cm} = 6 \text{ cm}$ .
- 4 Draw the rectangle **8 cm × 6 cm**. Label the scale (1:100) above it.

### HOW TO ANSWER TODAY

- **Scale drawing.** Scale 1:N means 1 unit on the drawing = N units in real life. Multiply the drawing length by N.  
Scale 1:100, drawing 5 cm → real  $5 \times 100 = 500 \text{ cm} = 5 \text{ m}$
- **Distance on an axis.** If the two points share x or y, subtract the OTHER coordinates. Answer is in units.  
(2, 5) and (2, 9) share  $x=2 \rightarrow 9 - 5 = 4$  units

### WARM-UP

- 1 Cian draws a scale plan of the 5th-class classroom for his project, using a scale of **1:10**. On the plan, the teacher's desk measures **10 cm** long. What is the real length of the desk in centimetres?  
A scale drawing is drawn at 1:10. A line on the drawing measures 10 cm. What is the real length?
- 2 Oisín draws a scale plan of his classroom for a maths project at a scale of **1:10**. The teacher's desk measures **12 cm** on his drawing. What is the real length of the desk in centimetres?  
A scale drawing is drawn at 1:10. A line on the drawing measures 12 cm. What is the real length?

### PRACTICE

- 1 Cian's 5th class is planning a school tour to Glendalough and Mr O'Brien sketches the visitor centre on a plan drawn at a scale of **1:50**. The front wall of the centre measures **9 cm** on his plan. What is the real length of the wall in centimetres?  
A scale drawing is drawn at 1:50. A line on the drawing measures 9 cm. What is the real length?
- 2 Aoife's class is designing a scale drawing of the new SuperValu car park at a scale of **1:200**. On her drawing, the length of the car park measures **15 cm**. What is the real length of the car park in centimetres?