IM 6–8 MATH™ v.III

Unit 1
Scale Drawings

7

Lesson 9

Creating Scale Drawings

Illustrative Mathematics®

Kendall Hunt

Learning Goal

Let's create our own scale drawings.

Which is Greater?

Warm-up: Number Talk

$11 \div 23$ or $7 \div 13$

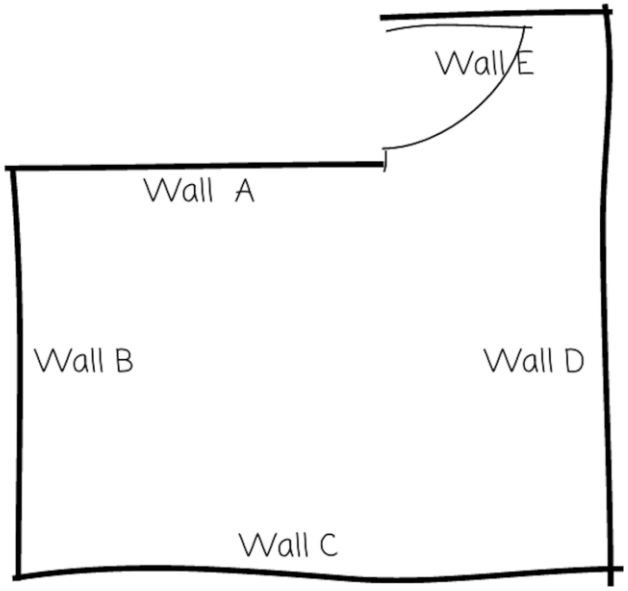
$0.63 \div 2$ or $0.55 \div 3$

$15 \div \frac{1}{3}$ or $15 \div \frac{1}{4}$

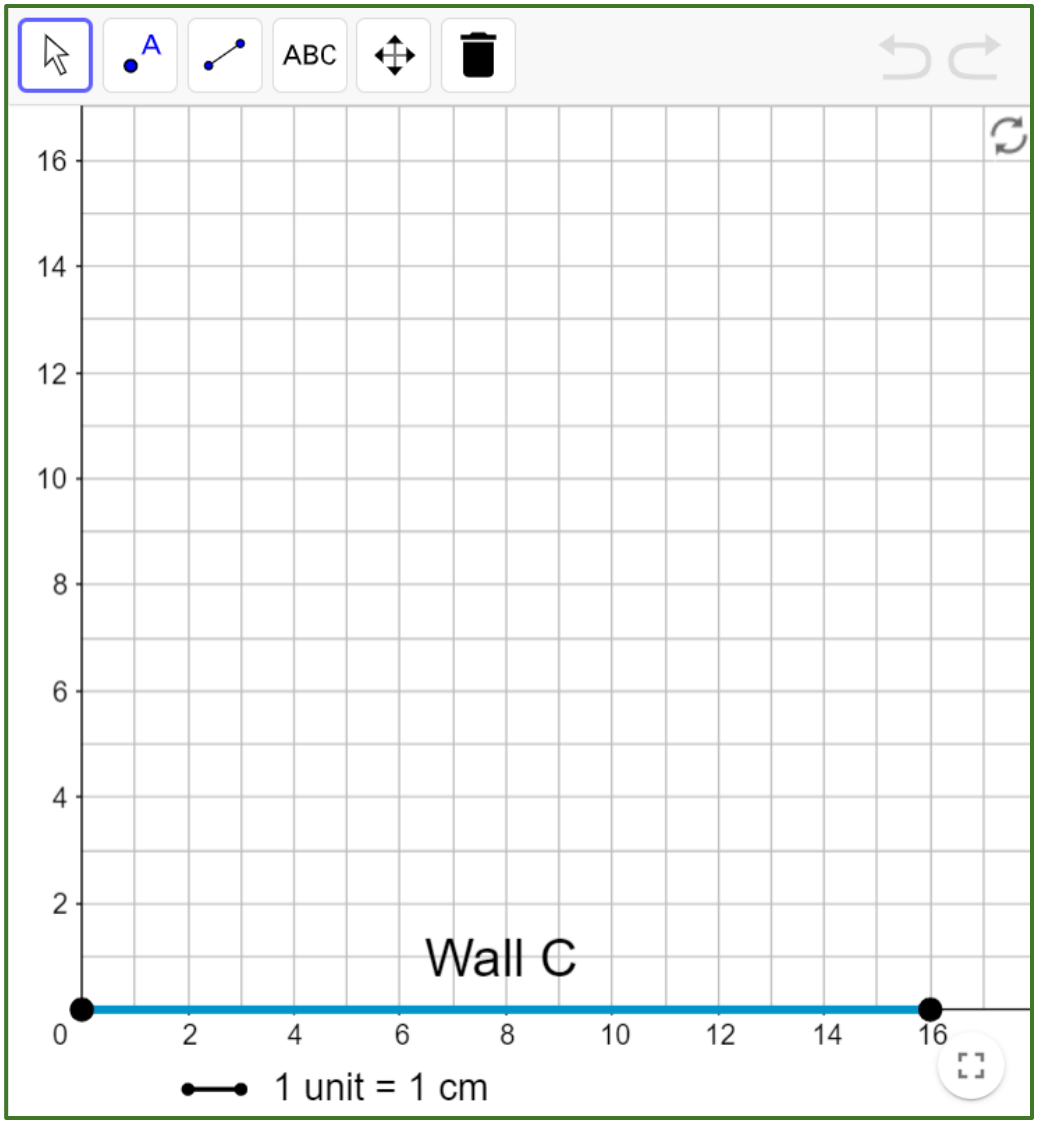
Bedroom Floor Plan

Here is a rough sketch of Noah's bedroom (not a scale drawing).

1. The actual length of Wall C is 4 m. To represent Wall C, Noah draws a segment 16 cm long. What scale is he using? Explain or show your reasoning.
2. Find another way to express the scale.
3. Discuss your thinking with your partner. How do your scales compare?
4. The actual lengths of Wall A and Wall D are 2.5 m and 3.75 m. Determine how long these walls will be on Noah's scale floor plan. Explain or show your reasoning.

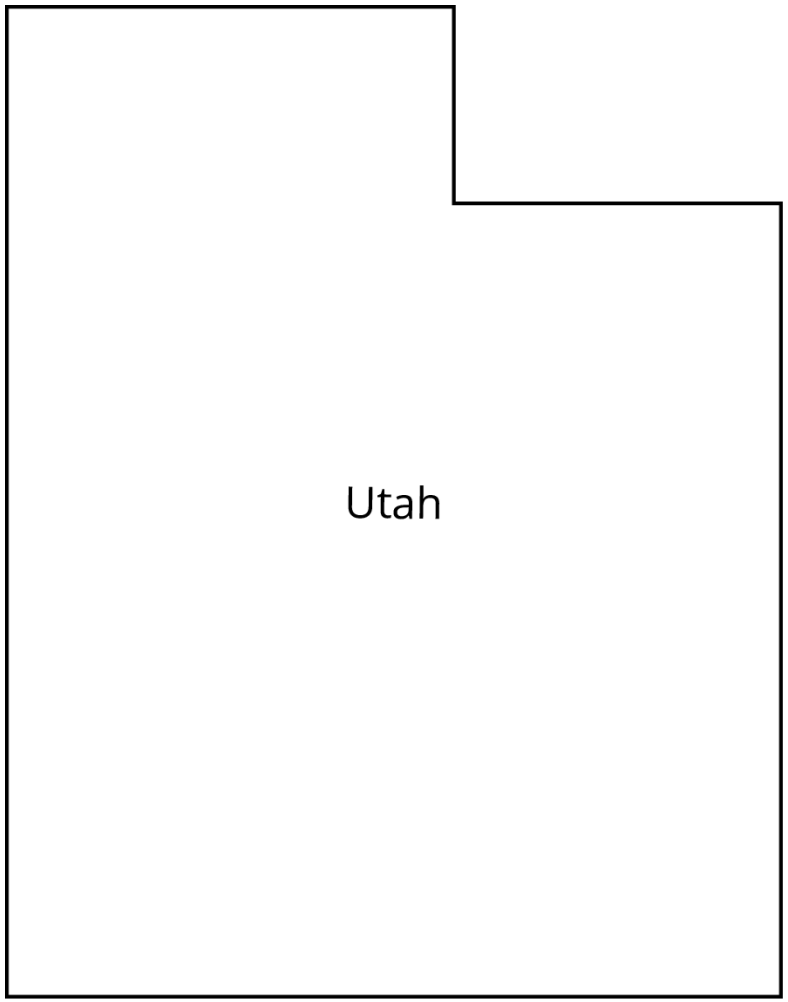


Bedroom Floor Plan



Two Maps of Utah

Notice and Wonder



Two Maps of Utah

A rectangle around Utah is about 270 miles wide and about 350 miles tall. The upper right corner that is missing is about 110 miles wide and about 70 miles tall.

1. Make a scale drawing of Utah where 1 centimeter represents 50 miles.

   Make a scale drawing of Utah where 1 centimeter represents 75 miles.

2. How do the two drawings compare? How does the choice of scale influence the drawing?

Two Maps of Utah

- What do the two scale drawings have in common?
- How do the two scale drawings differ?

Creating Scale Drawings

Lesson Synthesis

- Suppose there are two scale drawings of the same house. One uses the scale of 1 cm to 2 m, and the other uses the scale 1 cm to 4 m. Which drawing is larger? Why?
- Another scale drawing of the house uses the scale of 5 cm to 10 m. How does its size compare to the other two?

Learning Targets

- I can determine the scale of a scale drawing when I know lengths on the drawing and corresponding actual lengths.
- I know how different scales affect the lengths in the scale drawing.
- When I know the actual measurements, I can create a scale drawing at a given scale.

Drawing a Pool

Cool-down

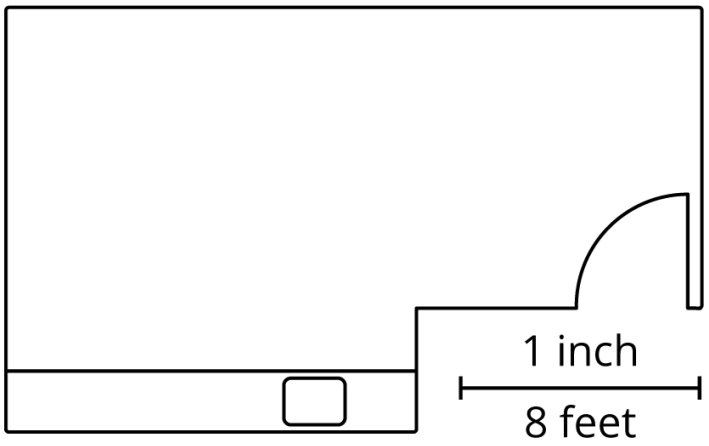
A rectangular swimming pool measures 50 meters in length and 25 meters in width.

1. Make a scale drawing of the swimming pool where 1 centimeter represents 5 meters.
2. What are the length and width of your scale drawing?

scale

A scale tells how the measurements in a scale drawing represent the actual measurements of the object.

For example, the scale on this floor plan tells us that 1 inch on the drawing represents 8 feet in the actual room. This means that 2 inches would represent 16 feet, and $\frac{1}{2}$ inch would represent 4 feet.



scale drawing

A scale drawing represents an actual place or object. All the measurements in the drawing correspond to the measurements of the actual object by the same scale.