

Scale Drawings: Lengths, Areas and Scale Factors

Grade 7 math · Test · Standards: 7.G.A.1

Name: _____ Date: _____ Class: _____

This test covers scale drawings: finding actual lengths and areas from a scale, using maps and blueprints, comparing two scales and redrawing at a new scale. Show each calculation with units. Calculators are not allowed. Plan on 45 minutes for the 8 questions.

Standards: 7.G.A.1 · **Level:** Grade 7

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Applying a Scale (2 points)

A drawing uses the scale 1 in = 12 ft.

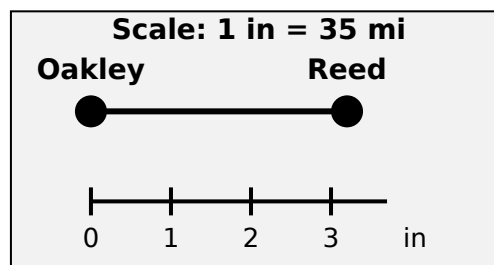
- A drawing length is 3.5 in. Find the actual length. (1 point)
- An actual length is 66 ft. Find the length on the drawing. (1 point)

Question 2 A Fractional Scale (2 points)

A scale is $\frac{1}{2}$ in = 3 ft. A wall measures $4\frac{1}{2}$ in on the drawing. Find its actual length.

Question 3 Distance on a Map (3 points)

The map segment shows two towns.

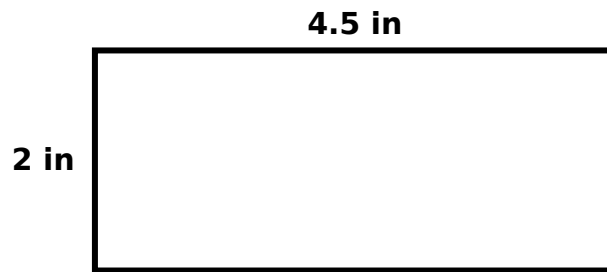


The map segment measures 3.2 inches.

- Find the actual distance. (1 point)
- How long does the drive take at an average speed of 56 mph? (1 point)
- A second route is 140 mi long. How long is it on the map? (1 point)

Question 4 Drawing of a Deck (3 points)

The drawing of a rectangular deck is shown.



Deck drawing, 1 in = 5 ft.

- Find the actual length and width. (1 point)
- Find the actual area. (1 point)
- Find the area of the drawing, then show that the actual area is the drawing area times 5^2 . (1 point)

Question 5 Two Scales (3 points)

Drawing A uses 1 in = 6 ft and Drawing B uses 1 in = 15 ft. A wall is 30 ft long.

- Find the wall's length on Drawing A. (1 point)
- Find the wall's length on Drawing B. (1 point)
- By what number must every length on Drawing A be multiplied to get Drawing B? (1 point)

Question 6 Model Sailboat (2 points)

A model sailboat is built at the scale 1 : 20. The real boat is 36 ft long. Find the length of the model in inches.

Question 7 Patio Cost (3 points)

A blueprint uses the scale 1 in = 3 ft. The drawing of a patio has an area of 20 square inches.

- How many square feet does one square inch of the drawing represent? (1 point)
- Find the actual area of the patio. (1 point)
- Paving costs \$6.25 per square foot. Find the cost to pave the patio. (1 point)

Question 8 Redraw a Bed (2 points)

At the scale 1 in = 4 ft, a bed is drawn 1.5 in wide and 2 in long. Find its dimensions when

redrawn at the scale 1 in = 2 ft.