

Scale Drawings: Lengths, Areas and Scale Factors

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

Award points as marked. Give credit for equivalent methods, such as a proportion or direct multiplication, and deduct only the units point when a correct number is missing its unit in a one-point part.

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

Question 1 Applying a Scale (2 points)

- a. $3.5 \times 12 = \mathbf{42 \text{ ft.}}$
- b. $66 \div 12 = \mathbf{5.5 \text{ in.}}$

Scoring: 1 point per part.

Question 2 A Fractional Scale (2 points)

4.5 in is 9 half-inches, and each half-inch is 3 ft, so $9 \times 3 = \mathbf{27 \text{ ft.}}$

Scoring: 1 point for a correct setup, 1 point for the result with units.

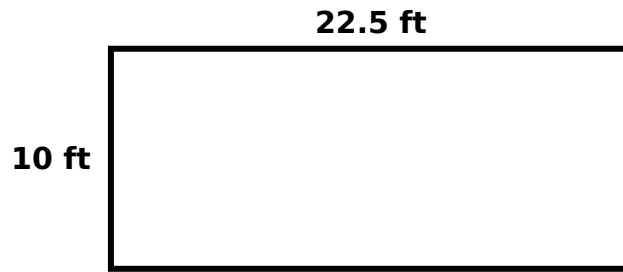
Question 3 Distance on a Map (3 points)

- a. $3.2 \times 35 = \mathbf{112 \text{ miles.}}$
- b. $112 \div 56 = \mathbf{2 \text{ hours.}}$
- c. $140 \div 35 = \mathbf{4 \text{ inches.}}$

Scoring: 1 point per part.

Question 4 Drawing of a Deck (3 points)

- a. $4.5 \times 5 = 22.5$ and $2 \times 5 = 10$: **22.5 ft by 10 ft.**
- b. $22.5 \times 10 = \mathbf{225 \text{ sq ft.}}$
- c. Drawing area: $4.5 \times 2 = 9 \text{ sq in.}$ Then $9 \times 25 = 225$, which matches.



Actual deck: 22.5 ft by 10 ft.

Scoring: 1 point per part.

Question 5 Two Scales (3 points)

- a. $30 \div 6 = \mathbf{5 \text{ in.}}$
- b. $30 \div 15 = \mathbf{2 \text{ in.}}$
- c. $2 \div 5 = \mathbf{0.4}$ (or $\frac{2}{5}$), which is $6 \div 15$.

Scoring: 1 point per part.

Question 6 Model Sailboat (2 points)

$36 \text{ ft} = 36 \times 12 = 432 \text{ in.}$ Model length: $432 \div 20 = \mathbf{21.6 \text{ in.}}$

Scoring: 1 point for converting to inches, 1 point for dividing by 20.

Question 7 Patio Cost (3 points)

- a. $3 \times 3 = \mathbf{9 \text{ sq ft.}}$
- b. $20 \times 9 = \mathbf{180 \text{ sq ft.}}$
- c. $180 \times 6.25 = \mathbf{\$1,125.}$

Scoring: 1 point per part.

Question 8 Redraw a Bed (2 points)

Actual: $1.5 \times 4 = 6 \text{ ft}$ wide and $2 \times 4 = 8 \text{ ft}$ long. New drawing: $6 \div 2 = 3 \text{ in}$ and $8 \div 2 = 4 \text{ in}$.

3 in wide by 4 in long

Scoring: 1 point for the actual size, 1 point for the new drawing.