

Finding the Area of Flat Shapes

Grade 6 math · Test Answer Key · Standards: 6.G.A.1

Award the points in each scoring line. Accept any valid decomposition of a composite figure. Give full credit for a correct answer with work shown, and take off the units point when square units are missing.

Standards: 6.G.A.1 · **Level:** Grade 6

Question 1 Triangle and parallelogram (2 points)

- a. $\frac{1}{2} \times 13 \times 8 = 52$, so **52 square feet**.
- b. $14 \times 6.5 = 91$, so **91 square meters**.

Scoring: 1 point for each part.

Question 2 Area of a trapezoid (2 points)

$$A = \frac{1}{2} (9 + 15) \times 5 = 12 \times 5 = 60.$$

60 square inches

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

Question 3 Missing height (2 points)

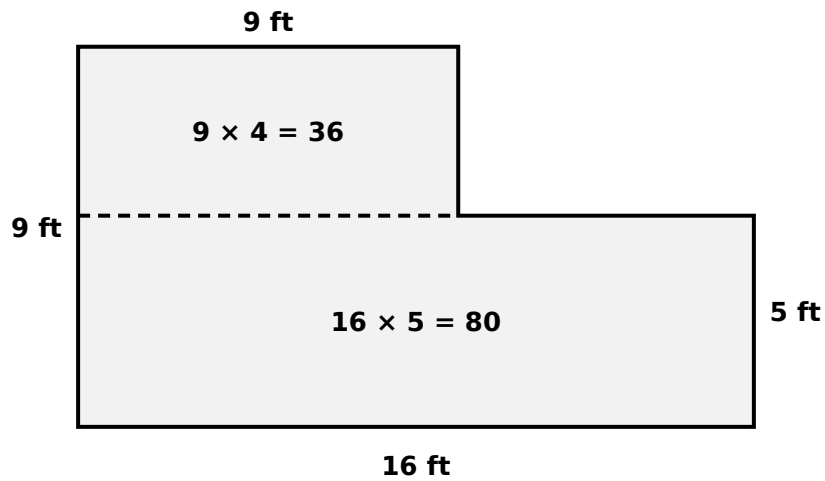
$$65 = \frac{1}{2} \times 10 \times h = 5h, \text{ so } h = 65 \div 5 = 13.$$

13 feet

Scoring: 1 point for the equation, 1 point for the answer.

Question 4 Composite floor plan (3 points)

Split the floor into a 16 by 5 rectangle and a 9 by 4 rectangle. $80 + 36 = 116$. Check: $16 \times 9 - 7 \times 4 = 144 - 28 = 116$.



Split into two rectangles.

116 square feet

Scoring: 1 point for a valid decomposition or missing side, 1 point for the two areas, 1 point for the total with units.

Question 5 Playground shade (3 points)

- a. $\frac{1}{2} \times 12 \times 9 = \mathbf{54 \text{ square feet.}}$
- b. $7 \times 5 = \mathbf{35 \text{ square feet.}}$
- c. $54 - 35 = \mathbf{19 \text{ square feet.}}$

Scoring: 1 point for each part.

Question 6 Mural wall (3 points)

- a. $\frac{1}{2} (20 + 14) \times 9 = 17 \times 9 = \mathbf{153 \text{ square feet.}}$
- b. $153 \div 36 = 4.25$, so 4 quarts are not enough: **5 quarts.**

Scoring: 2 points for part (a) (1 for the setup); 1 point for rounding up to 5.

Question 7 Comparing two shapes (3 points)

- a. Shape A: $16 \times 9 = \mathbf{144 \text{ square inches.}}$ Shape B: $\frac{1}{2} \times 24 \times 12 = \mathbf{144 \text{ square inches.}}$
- b. The two areas are **equal.**

Scoring: 1 point for each area; 1 point for the comparison.

Question 8 Missing base (2 points)

$156 = b \times 12$, so $b = 156 \div 12 = 13$.

13 meters

Scoring: 1 point for the equation, 1 point for the answer.