

Grade 6 · Area of Triangles, Quadrilaterals and Polygons · Test Answer Key

Common Core 6.G.A.1 · mathovore.fr

This answer key gives a full worked solution and a scoring guide for each of the nine questions. The test is worth 20 points. Award partial credit as described, and look for units on every area, since a correct number without square units loses the final point.

Grade 6 Common Core: 6.G.A.1

Question 1: Triangles (2 points)

a. $A = \frac{1}{2} \times 15 \times 8 = 60$. The area is 60 in².

b. $A = \frac{1}{2} \times 11 \times 6 = 33$. The area is 33 m².

Scoring: 1 point for each part. Award the point for a correct value with square units; give half credit if the factor $\frac{1}{2}$ is used but the arithmetic is wrong.

Question 2: Parallelogram (2 points)

The slanted side is not used. $A = bh = 18 \times 7 = 126$.

The area is 126 ft².

Scoring: 1 point for choosing base 18 and height 7 (not 10); 1 point for the correct area with units.

Question 3: Trapezoid (2 points)

$$A = \frac{1}{2}(7+13)(5) = \frac{1}{2} \times 20 \times 5 = 50.$$

The area is 50 cm².

Scoring: 1 point for adding the bases and using the factor $\frac{1}{2}$; 1 point for the correct area with units.

Question 4: Missing base (2 points)

$$54 = \frac{1}{2} \times b \times 9, \text{ so } 54 = 4.5b.$$

$$b = 54 \div 4.5 = 12$$

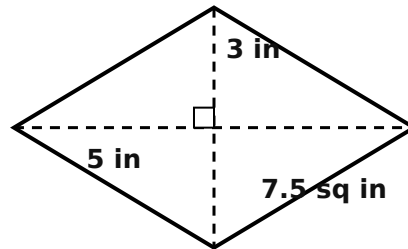
The base is 12 ft.

Scoring: 1 point for a correct equation; 1 point for solving it correctly with units.

Question 5: Rhombus (2 points)

- a. Each leg is half a diagonal: 5 in and 3 in. $A = \frac{1}{2} \times 5 \times 3 = 7.5$. The area is 7.5 in².
b. $4 \times 7.5 = 30$. The area is 30 in².

Scoring: 1 point for each part. In part (b), accept 30 in² found by any valid method.



Solution figure.

Question 6: Composite polygon (3 points)

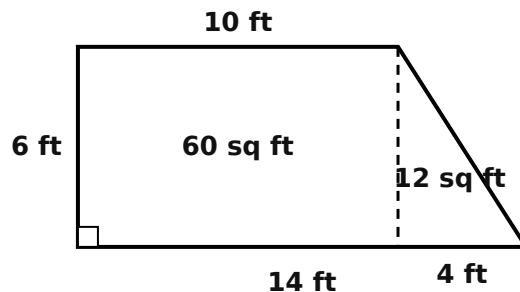
Cut off the right triangle at the right end. Its legs are $14 - 10 = 4$ ft and 6 ft.

Rectangle: $10 \times 6 = 60$ ft². Triangle: $\frac{1}{2} \times 4 \times 6 = 12$ ft².

Total: $60 + 12 = 72$. Check with the trapezoid formula: $\frac{1}{2}(10 + 14)(6) = 72$.

The area is 72 ft².

Scoring: 1 point for a valid decomposition and the leg lengths; 1 point for the two piece areas; 1 point for the correct total with units.



Solution figure.

Question 7: Market tarp (3 points)

- a. Rectangle: $20 \times 12 = 240 \text{ ft}^2$. Triangle: $\frac{1}{2} \times 6 \times 4 = 12 \text{ ft}^2$. Left: $240 - 12 = 228$. The area is 228 ft^2 .
- b. $228 \times \$0.75 = \$171$. The cost is \$171.

Scoring: Part (a): 1 point for both piece areas, 1 point for subtracting correctly. Part (b): 1 point.

Question 8: Find the error (2 points)

Liam multiplied the base and height but did not take half. A triangle is half of a parallelogram with the same base and height.

$$A = \frac{1}{2} \times 10 \times 7 = 35. \text{ The correct area is } 35 \text{ ft}^2.$$

Scoring: 1 point for identifying the missing factor $\frac{1}{2}$; 1 point for the correct area with units.

Question 9: Equal areas (2 points)

Parallelogram: $8 \times 5 = 40 \text{ m}^2$.

Triangle: $40 = \frac{1}{2} \times 10 \times h = 5h$, so $h = 8$.

The height is 8 m.

Scoring: 1 point for the area 40 m^2 ; 1 point for the correct height with units.

Total
20 points