

Grade 7 - Cross-Sections of Three-Dimensional Figures - Test Answer Key

Common Core 7.G.A.3 · maths-pdf.fr/en/

Use this answer key and scoring guide to grade the cross-sections test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

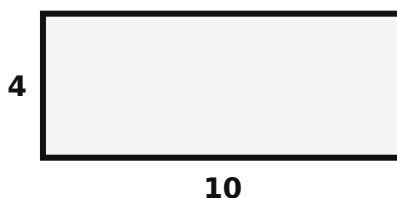
Grade 7 · Common Core State Standards: **7.G.A.3**

Question 1 - Prism slice [2 pts]

A cut parallel to the base is a rectangle congruent to the base: 10 by 4.

$$10 \times 4 = 40$$

Rectangle 10 by 4; area 40



The cross-section.

Scoring: 1 point for the shape and dimensions; 1 point for the area.

Question 2 - Vertical slice [2 pts]

The cross-section is a 5-by-7 rectangle.

$$5 \times 7 = 35$$

Rectangle; 35 square centimeters

Scoring: 1 point for the shape; 1 point for the area.

Question 3 - Pyramid slice [2 pts]

$$\frac{10-4}{10} \times 12 = \frac{36}{5} = 7.2 \text{ units.}$$

$$7.2^2 = 51.84$$

Side 7.2; area 51.84

Scoring: 1 point for the side length; 1 point for the area.

Question 4 - Through the apex [2 pts]

A triangle with base 10 and height 14.

$$A = \frac{1}{2}(10)(14) = 70$$

Triangle; area 70

Scoring: 1 point for the shape; 1 point for the area.

Question 5 - Name the slice [2 pts]

- a. Square.
- b. Triangle.
- c. Rectangle.

Square; triangle; rectangle

Scoring: Half a point per correct answer; round up.

Question 6 - Area comparison [2 pts]

The remaining fraction is $\frac{2}{3}$, so the side is $\frac{2}{3} \times 12 = 8$.

$$8^2 = 64$$

64 square inches

Scoring: 1 point for the side; 1 point for the area.

Question 7 - Storage box [2 pts]

The surface is 16 in by 12 in: 192 square inches.

$$192 \times 6 = 1152$$

192 square inches; 1,152 cubic inches

Scoring: 1 point for the area; 1 point for the volume.

Question 8 - Two cuts [3 pts]

- a. Side $\frac{2}{3} \times 6 = 4$; area 16.
- b. Triangle with base 6 and height 9: $\frac{1}{2}(6)(9) = 27$.
- c. Plane B, by $27 - 16 = 11$.

Plane	Shape	Area
A	square 4 x 4	16
B	triangle 6, 9	27

Results.

Scoring: 1 point for each part.

Question 9 - Cube cuts [3 pts]

- a. Square, $6 \times 6 = 36$ square inches.
- b. Triangle.
- c. A parallel plane meets four faces, so the cross-section has four sides, not three.

Scoring: 1 point for each part.

Total

20 points