

Grade 7 · Cross Sections of 3D Figures · Test Answer Key

Common Core 7.G.A.3 · mathovore.fr

This answer key for the cross sections test shows a worked solution for every question, together with a scoring guide that explains how the 20 points are awarded. Give partial credit when the shape is named correctly even if a later dimension or area has an arithmetic slip.

Grade 7 Common Core: 7.G.A.3

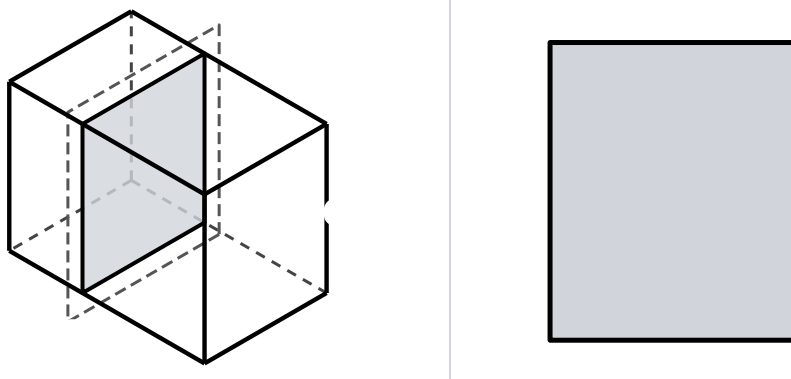
Question 1: Name the cross section (2 points)

- a. **Rectangle**
- b. **Triangle**

Scoring: 1 point per part.

Question 2: Vertical slice of a prism (3 points)

- a. A **rectangle 5 in. by 6 in.**
- b. $5 \times 6 = 30$: 30 in.^2

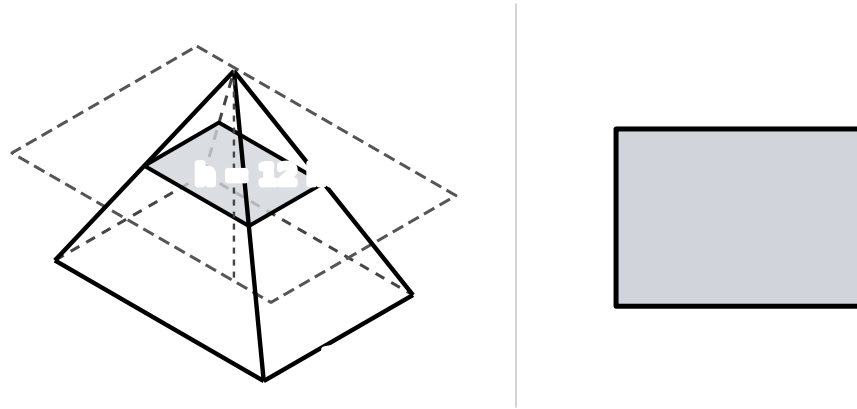


The cross section is a 5 in. by 6 in. rectangle.

Scoring: part (a) 1 point for rectangle and 1 point for both dimensions. Part (b) 1 point.

Question 3: Pyramid sliced parallel to the base (3 points)

- a. The slice is a rectangle. Halfway up, each side is half the base side: $14 \div 2 = 7$ and $10 \div 2 = 5$. **Rectangle 7 in. by 5 in.**
- b. $7 \times 5 = 35$: 35 in.^2



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

Scoring: part (a) 1 point for rectangle and 1 point for both dimensions. Part (b) 1 point.

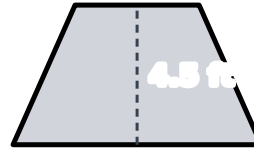
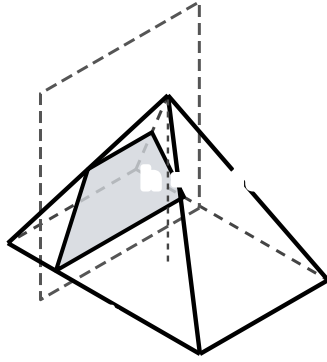
Question 4: Slice through the apex (2 points)

- a. **Triangle**
- b. The base of the triangle is 9 ft and its height is 12 ft. $\frac{1}{2} \times 9 \times 12 = 54$: 54 ft^2

Scoring: 1 point per part.

Question 5: Trapezoid cross section (3 points)

- a. **Trapezoid**
- b. $A = \frac{1}{2}(8+4) \times 4.5 = 6 \times 4.5 = 27$: 27 ft^2



The cross section is a trapezoid.

Scoring: part (a) 1 point. Part (b) 1 point for using $\frac{1}{2}(b_1+b_2)h$ correctly and 1 point for the answer 27 with square feet.

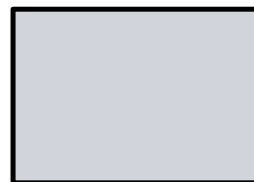
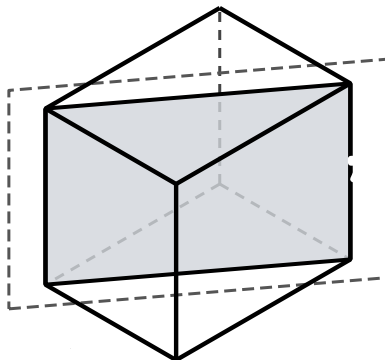
Question 6: Triangle claim (2 points)

No. Every face of a rectangular prism is a rectangle, and a plane perpendicular to the base meets the prism in a rectangle whose height is the height of the prism. A triangle cannot be formed.

Scoring: 1 point for answering no. 1 point for an explanation that the cross section is always a rectangle.

Question 7: Slice across a diagonal (3 points)

- Rectangle**
- The length is the base diagonal, 10 in., and the width is the height, 7 in. $10 \times 7 = 70$: **10 in. by 7 in., area 70 in.²**



The cross section.

Scoring: part (a) 1 point. Part (b) 1 point for both dimensions and 1 point for the area.

Question 8: Block of clay (2 points)

- a. A **rectangle 9 in. by 4 in.**, the same size as the base.
- b. The bottom piece is a prism 9 in. by 4 in. by 1 in. $9 \times 4 \times 1 = 36$: 36 in.³

Scoring: 1 point per part.

Total
20 points