

Grade 7 · Cross Sections of 3D Figures · Test

Common Core 7.G.A.3 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This 45-minute test checks Common Core standard 7.G.A.3 on cross sections of right rectangular prisms and pyramids. It has eight questions worth 20 points in total. Name each shape, show the dimensions you use, and give areas with square units.

Test information

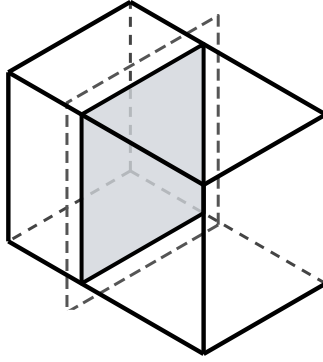
- **Grade:** Grade 7
- **Chapter:** Cross Sections of 3D Figures
- **Common Core:** 7.G.A.3
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 3 pts; Question 3: 3 pts; Question 4: 2 pts; Question 5: 3 pts; Question 6: 2 pts; Question 7: 3 pts; Question 8: 2 pts)

Question 1: Name the cross section (2 points)

- A rectangular prism is sliced by a plane parallel to its base. Name the cross section. (*1 point*)
- A rectangular pyramid is sliced by a plane perpendicular to its base that passes through the apex. Name the cross section. (*1 point*)

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

A rectangular prism is 8 in. long, 5 in. wide, and 6 in. tall. A plane perpendicular to the base and parallel to the 5 in. by 6 in. end slices it as shown.

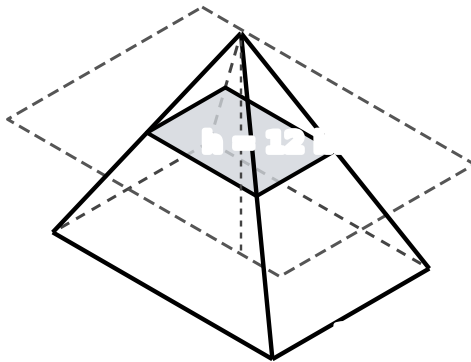


Prism with a vertical cutting plane.

- Name the cross section and give its dimensions. (2 points)
- Find the area of the cross section. (1 point)

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

A rectangular pyramid has a 14 in. by 10 in. base and a height of 12 in. A plane parallel to the base slices the pyramid halfway up, 6 in. above the base.



Pyramid cut parallel to the base.

- Name the cross section and give its dimensions. (2 points)
- Find the area of the cross section. (1 point)

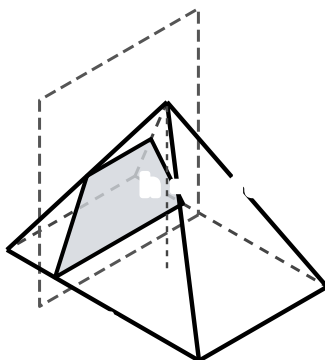
Question 4: Slice through the apex (2 points)

A rectangular pyramid has a 9 ft by 6 ft base and a height of 12 ft. A plane perpendicular to the base passes through the apex and is parallel to the 9 ft side.

- a. Name the cross section. (1 point)
- b. Find the area of the cross section. (1 point)

Question 5: Trapezoid cross section (3 points)

A vertical plane perpendicular to the base of a pyramid misses the apex, as shown. The cross section has parallel sides of 8 ft and 4 ft, and its height is 4.5 ft.



Pyramid with a vertical cutting plane.

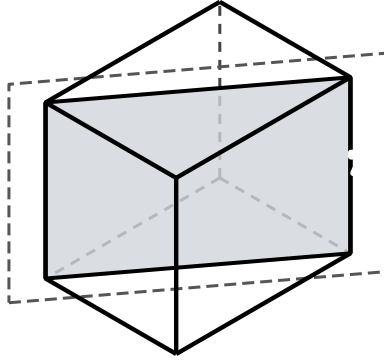
- a. Name the cross section. (1 point)
- b. Find its area. (2 points)

Question 6: Triangle claim (2 points)

Maya says that a plane perpendicular to the base of a rectangular prism can make a triangular cross section. Is she correct? Explain.

Question 7: Slice across a diagonal (3 points)

A rectangular prism has a 6 in. by 8 in. base and a height of 7 in. A plane perpendicular to the base cuts through two opposite corners of the base, as shown. The diagonal of the base is 10 in.



Vertical slice through opposite corners.

- Name the cross section. *(1 point)*
- Find its dimensions and its area. *(2 points)*

Question 8: Block of clay (2 points)

Priya has a block of clay shaped like a rectangular prism that is 9 in. long, 4 in. wide, and 3 in. tall. She cuts it with a plane parallel to the base, 1 in. above the base.

- Name the cross section and give its dimensions. *(1 point)*
- Find the volume of the bottom piece. *(1 point)*