

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

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

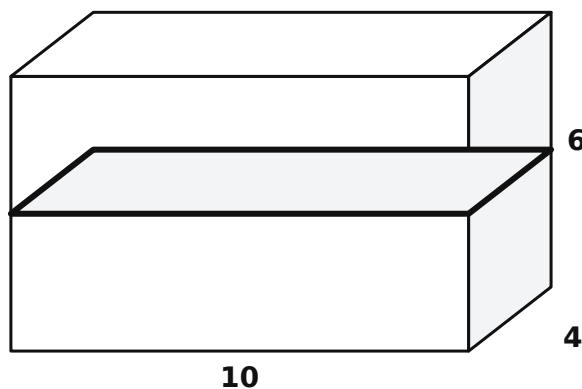
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks the two-dimensional shapes made when planes slice right rectangular prisms and right rectangular pyramids, including slices parallel and perpendicular to a base (Common Core 7.G.A.3). It has 9 questions worth 20 points in all. Show your work, because most questions give partial credit for correct steps.

About this test

- Grade: Grade 7
- Chapter: Cross-Sections of Three-Dimensional Figures
- Standards: 7.G.A.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Prism slice [2 pts]



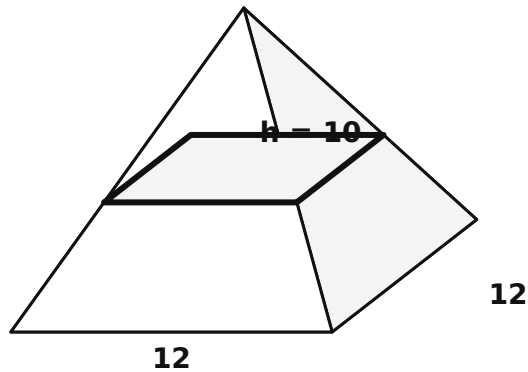
A prism cut parallel to its base.

Name the shape of the cross-section and find its dimensions and area.

Question 2 - Vertical slice [2 pts]

A prism is 9 cm long, 5 cm deep, and 7 cm tall. A vertical plane parallel to the 5-by-7 side face cuts it. Name the shape and find its area.

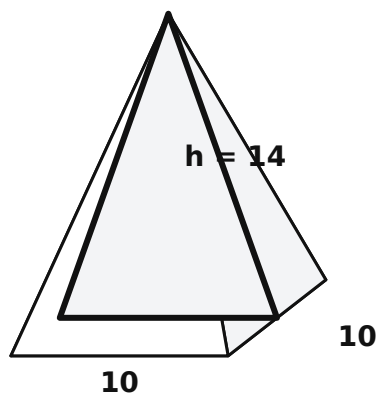
Question 3 - Pyramid slice [2 pts]



A square pyramid cut parallel to the base.

Find the side length and area of the square cross-section.

Question 4 - Through the apex [2 pts]



A vertical cut through the apex.

Name the shape of the cross-section and find its area.

Question 5 - Name the slice [2 pts]

Name the cross-section in each case. (a) A cube is cut parallel to a face. (b) A square pyramid is cut by a plane through the apex perpendicular to the base. (c) A rectangular prism is cut by a plane parallel to the base.

Question 6 - Area comparison [2 pts]

A square pyramid has a base of 12 in. A plane parallel to the base cuts it at one-third of the way to the apex from the base. Find the area of the cross-section.

Question 7 - Storage box [2 pts]

A storage box is a prism 16 in long, 12 in wide, and 10 in tall. It is filled to a depth of 6 in with sand. Find the area of the sand's surface and the volume of the sand.

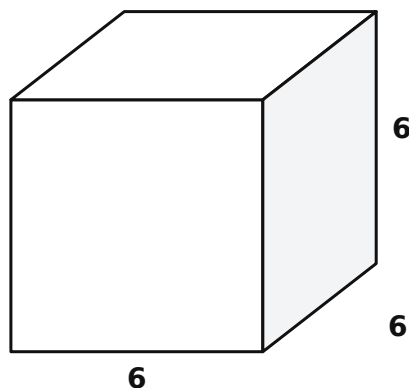
Question 8 - Two cuts [3 pts]

Plane	Pyramid base 6 x 6, height 9
A	parallel to base, 3 above
B	through apex, vertical

Two planes cut the same pyramid.

- Find the side and area of the cross-section made by plane A. (1 point)
- Find the shape and area of the cross-section made by plane B. (1 point)
- Which cross-section has the greater area? By how much? (1 point)

Question 9 - Cube cuts [3 pts]



A cube with edges of 6 inches.

- a. A plane parallel to a face cuts the cube. Name the shape and find the area. (1 point)
- b. A plane cuts off a corner by meeting three faces. Name the shape. (1 point)
- c. Explain why a plane parallel to a face of a cube can never give a triangle. (1 point)