LESSON MAKER PRO

Slice Shape Sleuth

Identify the flat shape made by a plane cut.

HIGH SCHOOL · MA.912.GR.4.1

MA.912.GR.4.1 "Identify the shapes of two-dimensional cross-sections of three-dimensional figures."

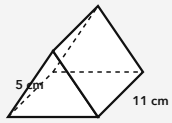
NAME _____ **DATE** _____

TRACK THE CUT

A cross-section is the flat shape where a plane cuts a solid. A cut parallel to a face has the same shape as that face. Other cuts can make a different polygon.

WORKED EXAMPLE

The plane is parallel to a triangular end of the prism. What shape is the cross-section?

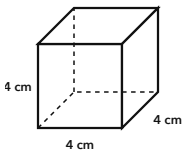


1. Find the face parallel to the cut.
2. That face is a triangle.
3. A parallel cross-section matches that shape.

Answer: triangle

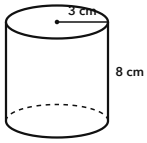
PRACTICE 4 problems

1 The plane is parallel to the base of the cube. What shape is the cross-section?



ANSWER _____

2 A plane passes through the axis of the cylinder and is perpendicular to its bases. What shape is the cross-section?



ANSWER _____

3 A plane cuts a rectangular prism parallel to one of its side faces. What shape is the cross-section?

ANSWER _____

4 A plane cuts a cone parallel to its circular base. What shape is the cross-section?

ANSWER _____

APPLY IT Show your work

1 A student designs a hexagonal pencil holder shaped like a hexagonal prism. A cut is parallel to its hexagonal base. What shape is the cross-section?

WORK SPACE

ANSWER _____

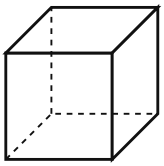
2 In a 3D animation, a flat plane slices a sphere used as a planet. What shape is the cross-section?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A plane cuts a cube, avoids every vertex, and crosses every face. What polygon is the cross-section? Explain your reasoning.



WORK SPACE AND ANSWER

ANSWER KEY

Slice Shape Sleuth

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The plane is parallel to the base of the cube. What shape is the cross-section?	**square**
2	A plane passes through the axis of the cylinder and is perpendicular to its bases. What shape is the cross-section?	**rectangle**
3	A plane cuts a rectangular prism parallel to one of its side faces. What shape is the cross-section?	**rectangle**
4	A plane cuts a cone parallel to its circular base. What shape is the cross-section?	**circle**

PART 2 · APPLY IT

1. **hexagon** A cross-section parallel to a prism base has the same shape as the base. The base is a hexagon.
2. **circle** Every plane cross-section of a sphere is a circle.

CHALLENGE

hexagon. Each face of the cube contributes one side to the cross-section.

Accept "six-sided polygon" for hexagon. For the challenge, accept any correct explanation that connects one side of the cross-section to each face of the cube.