

Geometry - Cross Sections and Solids of Revolution - Test

Common Core G-GMD.B.4 · maths-pdf.fr/en/

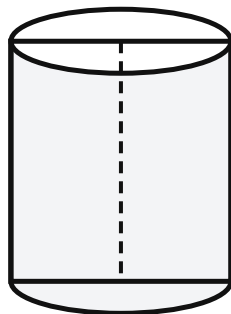
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks cross sections and solids of revolution. It has 9 questions worth 20 points in total. Show every step of the work, label diagrams, and include units where they apply. Calculators are allowed unless the teacher says otherwise.

About this test

- Grade: Geometry
- Chapter: Cross Sections and Solids of Revolution
- Standards: G-GMD.B.4
- Time: 45 minutes
- Total: 20 points

Question 1 - Cylinder cuts [2 pts]



cross section

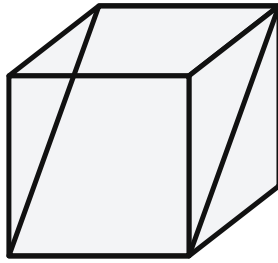


rectangle

Plane through the axis.

The cylinder has radius 4 and height 9. Name the cross section made by a plane through the axis and find its area.

Question 2 - Cube cut [2 pts]



cross section

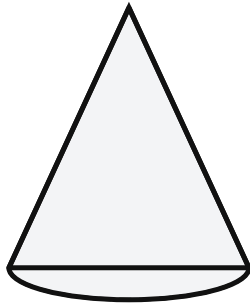


rectangle

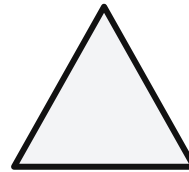
Plane through opposite edges.

A plane passes through two opposite edges of a cube with edge 4. Find the cross section's dimensions and area.

Question 3 - Cone cuts [3 pts]



cross section

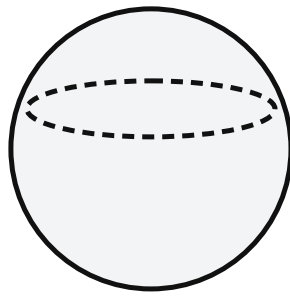


triangle

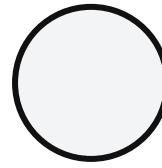
Plane through the apex.

- A plane parallel to the base of a cone cuts it. Name the cross section. (1 point)
- A cone has radius 6 and height 8. Find the area of the triangle cut by a plane through the axis. (1 point)
- Find the radius of the circle cut halfway up the height. (1 point)

Question 4 - Sphere [2 pts]



cross section



Plane cuts a sphere.

A sphere has radius 10. A plane 6 units from the center cuts it. Find the radius and area of the cross section.

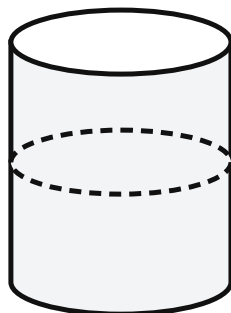
Question 5 - Solids of revolution [3 pts]

- A rectangle 5 wide and 12 tall is rotated about its 12-unit side. Name the solid and give its volume. (1 point)
- A right triangle with legs 5 and 12 is rotated about the leg of length 12. Name the solid and give its volume. (1 point)
- A semicircle of radius 6 is rotated about its diameter. Name the solid and find its volume. (1 point)

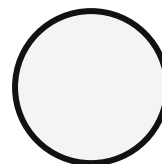
Question 6 - Similar cross section [2 pts]

A square pyramid has base side 10 and height 12. A plane parallel to the base cuts it 4 units from the apex. Find the side of the square cross section and its area.

Question 7 - Hollow solid [2 pts]



cross section



Cut.

A rectangle 3 wide and 7 tall has its left side 2 units from the axis of rotation. Find the volume of the hollow cylinder it makes in terms of π .

Question 8 - Match [2 pts]

Match each cross section to the solid and cut: (1) circle, (2) triangle, (3) rectangle. Choose from: a cone cut through its apex and axis; a cylinder cut through its axis; a sphere cut anywhere.

Question 9 - Loaf [2 pts]

A cylindrical roll of cookie dough has radius 3 cm and length 24 cm. Sofia slices it into 12 equal pieces perpendicular to its length. Name the shape of each face and find the volume of one piece to the nearest tenth.