

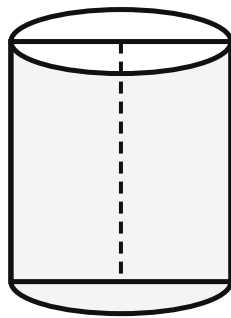
Geometry - Cross Sections and Solids of Revolution - Test Answer Key

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

Use this answer key and scoring guide for the cross sections test. Each solution shows the full work, and the scoring note tells how the points are split between method and final answer. Partial credit is listed so that grading stays consistent from one paper to the next.

Geometry · Common Core State Standards: **G-GMD.B.4**

Question 1 - Cylinder cuts [2 pts]



cross section



8 by 9

Area = 72.

A rectangle 8 by 9.

$$8 \cdot 9 = 72$$

Rectangle; area 72

Scoring: 1 point for the shape, 1 point for the area.

Question 2 - Cube cut [2 pts]

The rectangle is 4 by $4\sqrt{2}$.

$$4 \cdot 4\sqrt{2} = 16\sqrt{2} = 22.6$$

$16\sqrt{2}$, about 22.6

Scoring: 1 point for the dimensions, 1 point for the area.

Question 3 - Cone cuts [3 pts]

- a. A circle.
- b. Base 12 and height 8: $\frac{1}{2} \cdot 12 \cdot 8 = 48$.
- c. Half of the radius: 3.

(a) Circle; (b) 48; (c) 3

Scoring: 1 point per part.

Question 4 - Sphere [2 pts]

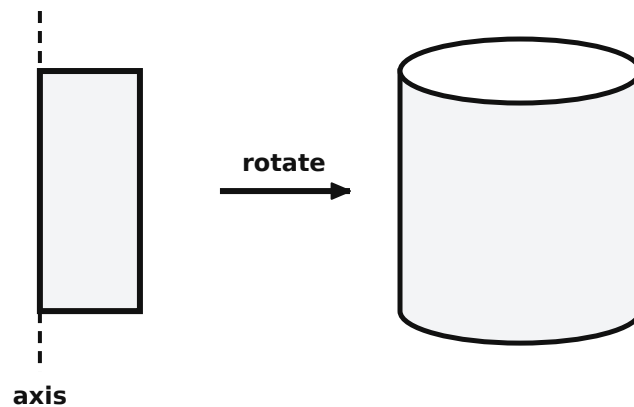
$$r = \sqrt{10^2 - 6^2} = 8.$$

$$A = 64\pi$$

Radius 8; area 64π

Scoring: 1 point for the radius, 1 point for the area.

Question 5 - Solids of revolution [3 pts]



Rectangle to cylinder.

- a. Cylinder, $V = \pi \cdot 25 \cdot 12 = 300\pi$
- b. Cone, $V = \frac{1}{3}\pi \cdot 25 \cdot 12 = 100\pi$
- c. Sphere, $V = \frac{4}{3}\pi \cdot 216 = 288\pi$

Scoring: 1 point per part (0.5 for the solid and 0.5 for the volume).

Question 6 - Similar cross section [2 pts]

The cross section is similar to the base with ratio $\frac{4}{12} = \frac{1}{3}$.

Side $\frac{10}{3}$, area $\frac{100}{9}$.

Side 10/3; area 100/9

Scoring: 1 point for the ratio, 1 point for side and area.

Question 7 - Hollow solid [2 pts]

Inner radius 2, outer radius 5, height 7.

$$\pi(5^2 - 2^2) \cdot 7 = 147\pi$$

147 π

Scoring: 1 point for the radii, 1 point for the volume.

Question 8 - Match [2 pts]

(1) circle: a sphere cut anywhere. (2) triangle: a cone cut through its apex and axis. (3) rectangle: a cylinder cut through its axis.

Scoring: 2 points for all three, 1 point for two correct.

Question 9 - Loaf [2 pts]

Each face is a circle. One piece has thickness $24 \div 12 = 2$ cm.

$$V = \pi \cdot 3^2 \cdot 2 = 18\pi = 56.5$$

Circle; 56.5 cubic centimeters

Scoring: 1 point for the shape and thickness, 1 point for the volume.

Total
20 points