

Geometry · Area and Volume Formulas · Test

Common Core G-GMD.A.1, G-GMD.A.3 · mathovore.fr

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

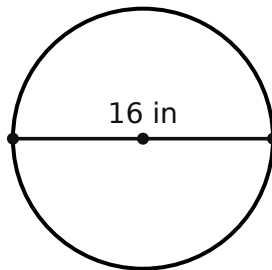
This 45-minute test has 9 questions worth 20 points. Show every step. Give exact answers in terms of π unless a question asks for a rounded value, and include the correct units.

Test information

- **Grade:** Geometry
- **Chapter:** Area and Volume Formulas
- **Common Core:** G-GMD.A.1, G-GMD.A.3
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 2 pts; Question 7: 2 pts; Question 8: 3 pts; Question 9: 3 pts)

Question 1: Circle measures (2 points)

A circle has a diameter of 16 in. Give exact answers in terms of π .

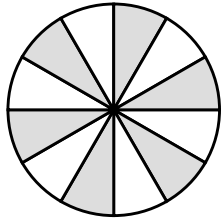


A circle with diameter 16 in.

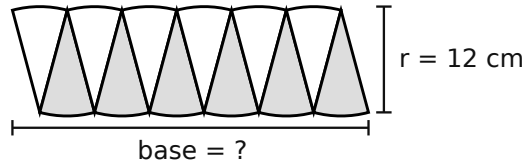
- (1 point) Find the circumference.
- (1 point) Find the area.

Question 2: Rearranged sectors (2 points)

A circle of radius 12 cm is cut into many thin sectors that are rearranged into a shape close to a parallelogram.



Circle cut into 12 sectors

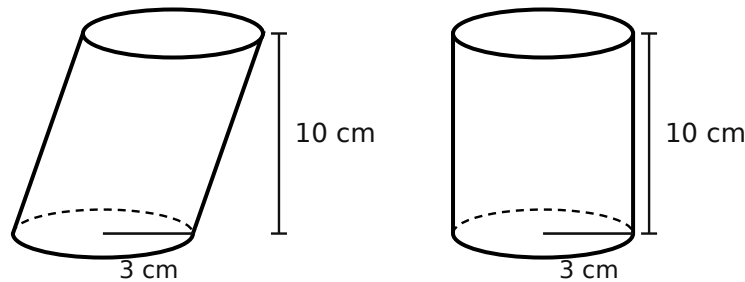


Rearranged sectors of a circle with radius 12 cm.

- (1 point) Find the length of the base in terms of π .
- (1 point) Find the area of the shape and state which circle formula it confirms.

Question 3: Slanted cylinder (2 points)

The slanted cylinder and the right cylinder each have a base radius of 3 cm and a perpendicular height of 10 cm.



Slanted and right cylinders.

- (1 point) Find the exact volume of the slanted cylinder.
- (1 point) Name the principle that justifies your answer and state what it says about the cross sections.

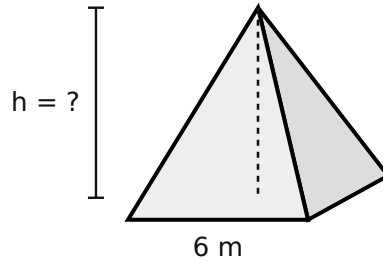
Question 4: Oil drum (2 points)

A cylindrical oil drum has a diameter of 24 in and a height of 36 in.

- (1 point) Find its volume in terms of π .
- (1 point) One gallon is 231 in³. Find the capacity in gallons to the nearest tenth.

Question 5: Pyramid height (2 points)

A square pyramid has a base side of 6 m and a volume of 150 m^3 .

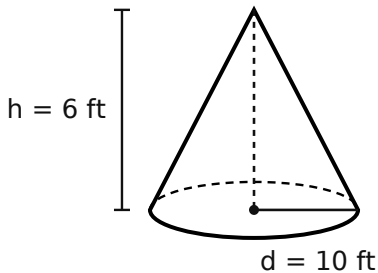


A square pyramid.

- (1 point) Find the height of the pyramid.
- (1 point) Find the volume of a prism with the same base and the same height.

Question 6: Pile of sand (2 points)

A cone-shaped pile of sand has a diameter of 10 ft and a height of 6 ft.



A cone-shaped pile of sand.

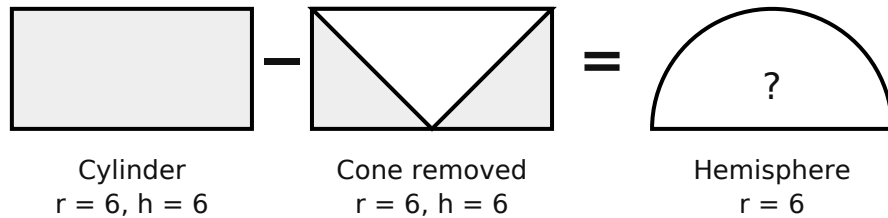
- (1 point) Find the volume to the nearest hundredth.
- (1 point) Sand weighs 100 pounds per cubic foot. Find the weight of the pile in pounds.

Question 7: Volume of a sphere (2 points)

A sphere has a radius of 9 cm. Find its volume in terms of π and to the nearest hundredth.

Question 8: Hemisphere and cylinder (3 points)

A cylinder and a cone each have a radius of 6 cm and a height of 6 cm.



- (1 point) Find the exact volume of the cylinder.
- (1 point) Find the exact volume of the cone.
- (1 point) Subtract, then use the sphere formula to show that the result equals the volume of a hemisphere of radius 6 cm.

Question 9: Cone candles (3 points)

Priya pours wax from a full cylindrical mold into small cone-shaped molds. The cylinder has a radius of 4 cm and a height of 9 cm. Each cone has a radius of 3 cm and a height of 6 cm.

- (1 point) Find the volume of the cylinder in terms of π .
- (1 point) Find the volume of one cone in terms of π .
- (1 point) How many cone candles can she fill?