

Geometry - Geometric Modeling Applications - Test

Common Core G-MG.A.1, G-MG.A.2, G-MG.A.3 · maths-pdf.fr/en/

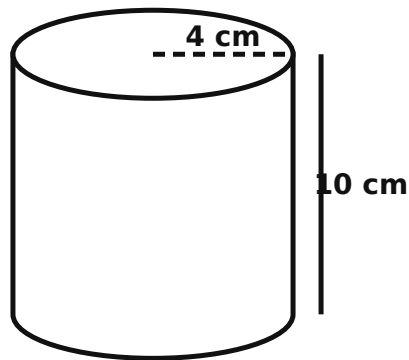
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks geometric models, density and design constraints. 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: Geometric Modeling Applications
- Standards: G-MG.A.1, G-MG.A.2, G-MG.A.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Modeling a can [2 pts]



Can.

A can has radius 4 cm and height 10 cm. Find its volume and the volume in liters (1 L = 1,000 cm³), to the nearest hundredth.

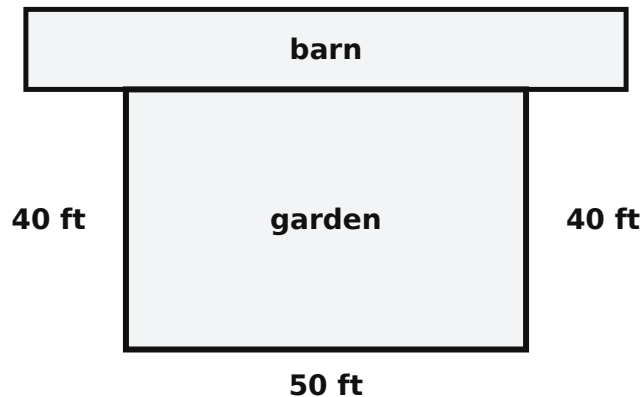
Question 2 - Density [2 pts]

A wooden cube with edge 5 cm has mass 100 g. Find its density in g per cm^3 . Would it float in water (density 1 g per cm^3)?

Question 3 - Population density [3 pts]

- A county has 84,000 people on 120 square miles. Find its population density. (1 point)
- Another county has density 650 people per square mile and covers 210 square miles. Estimate its population. (1 point)
- Which county is more crowded? Explain. (1 point)

Question 4 - Fence design [3 pts]



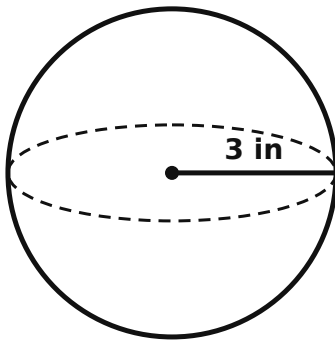
Garden next to a barn.

A farmer has 130 feet of fence for three sides of a rectangular pen against a barn wall. Find the length of the side parallel to the barn for widths 30, 35 and 40 feet, and the area of each. Which width gives the largest area?

Question 5 - Painting [2 pts]

A cylindrical silo has radius 6 ft and height 20 ft. Find the area of its curved side to the nearest square foot, and the cost to paint it at \$0.40 per square foot.

Question 6 - Sphere [2 pts]



Ball.

A ball has diameter 6 inches. Find its volume and its surface area, each in terms of π .

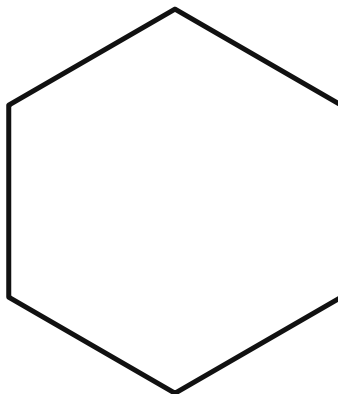
Question 7 - Concrete [2 pts]

A driveway is 30 ft long, 10 ft wide and 6 inches thick. Find the volume of concrete in cubic yards to the nearest hundredth, using 27 cubic feet in a cubic yard.

Question 8 - Minimum height [2 pts]

A cylindrical water tower must hold at least 20,000 cubic feet and has radius 15 feet. Find the minimum height to the nearest tenth of a foot.

Question 9 - Hexagon cell [2 pts]



Hexagonal cell.

A regular hexagonal cell has side 4 mm. Find its area to the nearest tenth, using $A = \frac{3\sqrt{3}}{2}s^2$.