

Grade 8 · Volume of Cylinders, Cones and Spheres · Test

Common Core 8.G.C.9 · mathovore.fr

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

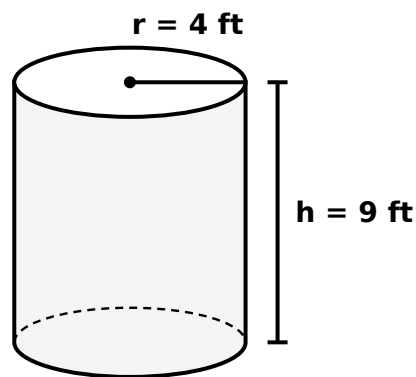
This test covers standard 8.G.C.9 with 8 questions worth 20 points. Students find volumes of cylinders, cones and spheres, work backward to a missing dimension, and solve real-world problems. Use a calculator only where 3.14 is given, and show all work.

Test information

- **Grade:** Grade 8
- **Chapter:** Volume of Cylinders, Cones and Spheres
- **Common Core:** 8.G.C.9
- **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: 3 pts; Question 7: 3 pts; Question 8: 4 pts)

Question 1: Volume of a cylinder (2 points)

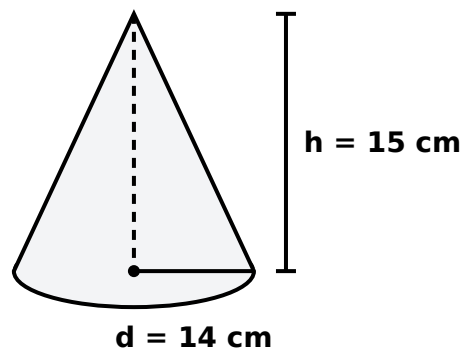
Find the volume of the cylinder in terms of π .



Cylinder, radius 4 ft, height 9 ft.

Question 2: Volume of a cone (2 points)

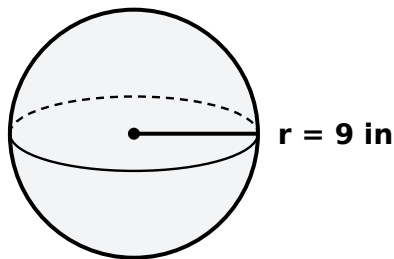
Find the volume of the cone in terms of π .



Cone, diameter 14 cm, height 15 cm.

Question 3: Volume of a sphere (2 points)

- Find the volume of the sphere in terms of π . (1 point)
- Use 3.14 for π and round to the nearest tenth. (1 point)



Sphere, radius 9 in.

Question 4: Missing height of a cylinder (2 points)

A cylinder has a volume of $1,008\pi \text{ cm}^3$ and a radius of 6 cm. Find its height.

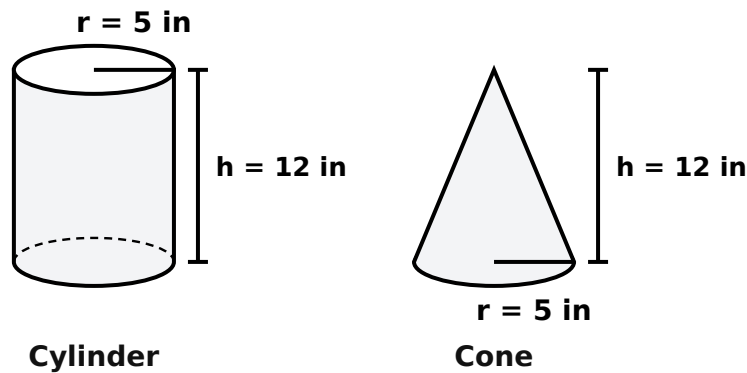
Question 5: Missing height of a cone (2 points)

A cone has a volume of $1,200\pi \text{ m}^3$ and a radius of 10 m. Find its height.

Question 6: Cone and cylinder together (3 points)

A cylinder and a cone both have a radius of 5 in and a height of 12 in.

- Find the volume of the cylinder in terms of π . (1 point)
- Find the volume of the cone in terms of π . (1 point)
- How many full cones of water are needed to fill the empty cylinder? (1 point)



A cylinder and a cone with equal radius and height.

Question 7: Planter and soil (3 points)

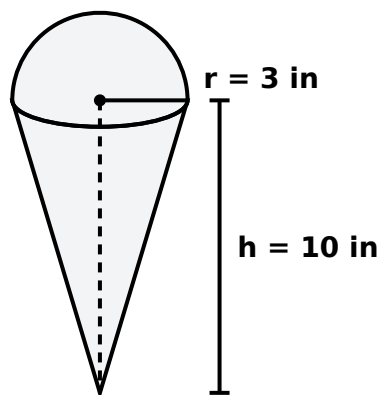
Maya builds a cylindrical planter with a radius of 1.5 ft and a height of 2 ft.

- Use 3.14 for π to find the volume of the planter. (2 points)
- Bags of soil hold 2 cubic feet each. How many bags must she buy to fill the planter? (1 point)

Question 8: Ice cream cone (4 points)

An ice cream cone has a radius of 3 in and a height of 10 in. A hemisphere of ice cream with a radius of 3 in sits on top of the cone.

- Find the volume of the cone in terms of π . (1 point)
- Find the volume of the hemisphere in terms of π . (1 point)
- Find the total volume in terms of π . (1 point)
- Use 3.14 to approximate the total volume to the nearest tenth. (1 point)



A cone topped by a hemisphere.