

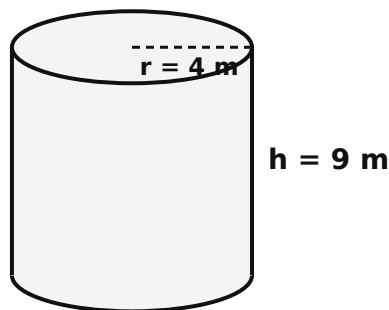
Grade 8 - Volume of Cylinders, Cones and Spheres - Test Answer Key

Common Core 8.G.C.9 · maths-pdf.fr/en/

Use this answer key to score the volume of cylinders, cones and spheres test out of 20 points. Each solution shows the full work and a scoring guide, so partial credit can be given fairly when a student shows correct steps but makes an arithmetic slip.

Grade 8 · Common Core State Standards: **8.G.C.9**

Question 1 - Cylinder [3 pts]

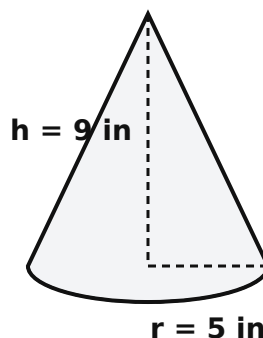


$$V = 144\pi \text{ m}^3.$$

$$V = \pi \cdot 16 \cdot 9 = 144\pi. \quad 144 \cdot 3.14 = 452.16 \approx 452.2.$$

Scoring: 1 point for the setup, 1 point for 144π , 1 point for 452.2.

Question 2 - Cone [3 pts]



$$V = 75\pi \text{ in}^3.$$

$$V = \frac{1}{3}\pi \cdot 25 \cdot 9 = 75\pi.$$

Scoring: 1 point for the formula, 1 point for the substitution, 1 point for 75π cubic inches.

Question 3 - Sphere [3 pts]

Radius 5: $V = \frac{4}{3}\pi \cdot 125 = \frac{500}{3}\pi.$

Scoring: 1 point for the radius, 1 point for the formula, 1 point for $\frac{500}{3}\pi.$

Question 4 - Find a dimension [3 pts]

$$200\pi = \pi r^2 \cdot 8, \text{ so } r^2 = 25 \text{ and } r = 5 \text{ feet.}$$

Scoring: 1 point for the equation, 1 point for $r^2 = 25$, 1 point for 5 ft.

Question 5 - Compare [2 pts]

The cone holds one third as much: $30\pi.$

Scoring: 1 point for $30\pi.$ 1 point for the explanation.

Question 6 - Combined solid [3 pts]

Cylinder: $\pi \cdot 9 \cdot 10 = 90\pi.$ Hemisphere: $\frac{2}{3}\pi \cdot 27 = 18\pi.$

Total: 108π cubic centimeters.

Scoring: 1 point for each part, 1 point for the total.

Question 7 - Real world [2 pts]

Radius 5. $V = 3.14 \cdot 25 \cdot 2 = 157.$

Scoring: 1 point for the radius. 1 point for 157 cubic inches.

Question 8 - Explain [1 pt]

The radius is cubed in the formula, and $2^3 = 8$.

Scoring: Full credit for mentioning the cube of the radius.

Total
20 points