

Unit 6: Functions and Volume

ADVANCED · SET 2

Name: _____

Date: _____

Show all work. Give exact answers; leave answers in terms of π where the problem uses π .

1. A cylinder has radius 6 cm and height 14 cm. Find its volume in terms of π . ($V = \pi \times r^2 \times h$)

Answer: _____

3. A sphere has radius 12 m. Find its volume in terms of π . ($V = \frac{4}{3} \times \pi \times r^3$)

Answer: _____

5. A cylinder has volume $1350\pi \text{ cm}^3$ and radius 15 cm. Find its height. ($V = \pi \times r^2 \times h$)

Answer: _____

7. A rectangular prism has length 8.5 cm, width 6 cm, and height 12 cm. Find its volume in cm^3 .

Answer: _____

9. A solid is a cylinder (radius 5, height 10) with a cone (radius 5, height 6) sitting on top. Find the total volume of the solid in terms of π .

Answer: _____

11. A cylinder has radius 4 mm and height 11 mm. Find its total surface area in terms of π . ($SA = 2 \times \pi \times r^2 + 2 \times \pi \times r \times h$)

Answer: _____

2. A cone has radius 9 in and height 16 in. Find its volume in terms of π . ($V = \frac{1}{3} \times \pi \times r^2 \times h$)

Answer: _____

4. A function is defined by the rule $f(x) = 3x^2 - 5x + 2$. Find $f(-4)$.

Answer: _____

6. A cylinder and a cone have the same radius and the same height. The cylinder's volume is $741\pi \text{ cm}^3$. Find the cone's volume in cm^3 .

Answer: _____

8. A sphere has radius 7 ft. Find its surface area in terms of π . ($SA = 4 \times \pi \times r^2$)

Answer: _____

10. A function is defined by $f(x) = (2x + 7) / 3$. Find the value of x for which $f(x) = 11$.

Answer: _____

12. A hemisphere (half of a sphere) has radius 6 cm. Find its volume in terms of π . (V of full sphere $= \frac{4}{3} \times \pi \times r^3$)

Answer: _____