

$$V = lwh$$

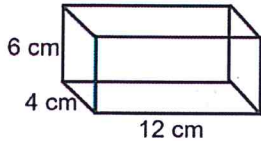
$$V = \pi r^2 h$$

Name Schlansky  
Mr. Schlansky

Date \_\_\_\_\_  
Geometry

## Calculating Volume

1. Find the volume of the rectangular prism given below



$$V = lwh$$

$$V = 12(4)(6)$$

$$V = 288 \text{ cm}^3$$

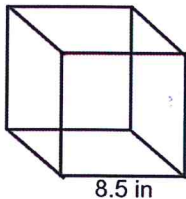
2. Find the volume of a rectangular prism that has dimensions 10 feet by 14 feet by 8 feet.

$$V = lwh$$

$$V = 10(14)(8)$$

$$V = 1120 \text{ ft}^3$$

3. Find the volume of the cube shown below.



$$V = lwh$$

$$V = 8.5(8.5)(8.5)$$

$$V = 614.125 \text{ in}^3$$

4. Lenny made a cube in technology class. Each edge measured 1.5 cm. What is the volume of the cube in cubic centimeters?

$$V = lwh$$

$$V = 1.5(1.5)(1.5)$$

5. Which expression represents the volume, in cubic centimeters, of the cylinder represented in the diagram below?

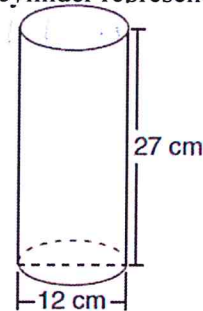
1)  $162\pi$  3)  $972\pi$

2)  $324\pi$  4)  $3,888\pi$

$$V = \pi r^2 h$$

$$V = \pi(6)^2(27)$$

$$V = 972\pi$$



6. What is the volume, in cubic centimeters, of a cylinder that has a height of 15 cm and a diameter of 12 cm?

- 1)  $180\pi$
- 2)  $540\pi$
- 3)  $675\pi$
- 4)  $2,160\pi$

$$V = \pi r^2 h$$

$$V = \pi (6)^2 (15)$$

$$V = 540\pi$$

7. A cylinder is 8 cm tall and has a base with a radius of 3 cm. What is the total volume of the cylinder to the nearest tenth of a centimeter?

$$V = \pi r^2 h$$

$$V = \pi (3)^2 (8)$$

$$V = 226.2 \text{ cm}^3$$

8. A cylindrical container has a diameter of 12 inches and a height of 15 inches, as illustrated in the diagram below.

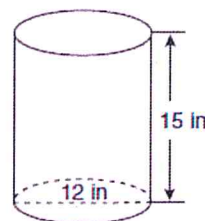
What is the volume of this container?

- 1) 6,785.8
- 2) 4,241.2
- 3) 2,160.0
- 4) 1,696.5

$$V = \pi r^2 h$$

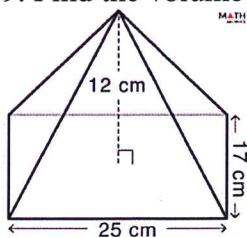
$$V = \pi (6)^2 (15)$$

$$V = 1696.5$$



(Not drawn to scale)

9. Find the volume of the pyramid below

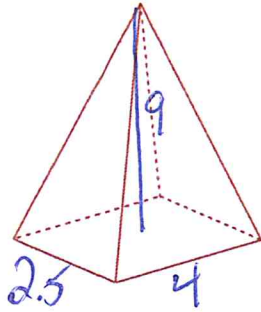


$$V = \frac{1}{3} lwh$$

$$V = \frac{1}{3} (25)(17)(12)$$

$$V = 1700 \text{ cm}^3$$

10. The pyramid below has a base with a length of 4 cm, width of 2.5 cm, and an altitude of 9 cm. Find the volume of the pyramid.



$$V = \frac{1}{3}lwh$$

$$V = \frac{1}{3}(2.5)(4)(9)$$

$$V = 30 \text{ cm}^3$$

11. In the diagram below, a right circular cone has a diameter of 8 inches and a height of 12 inches.

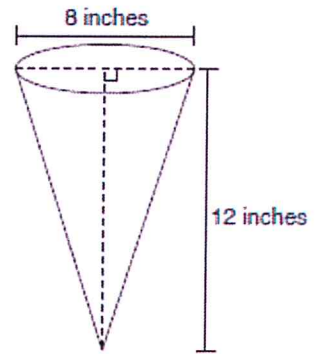
What is the volume of the cone to the nearest cubic inch?

- 1) 201      3) 603  
 2) 481      4) 804

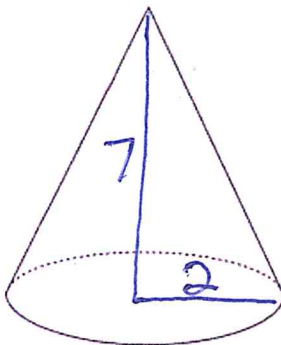
$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi(4)^2(12)$$

$$V = 201$$



12. A cone has a base with a radius of 2 and an altitude of 7. Find its volume in terms of  $\pi$ .

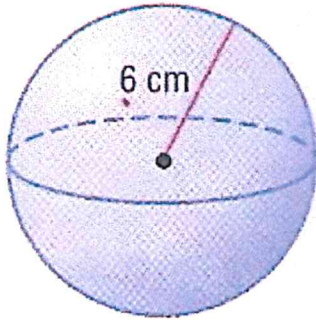


$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi(2)^2(7)$$

$$V = \frac{28}{3}\pi$$

13. Find the volume of the sphere shown below in terms of  $\pi$ .



$$V = \frac{4}{3}\pi r^3$$

$$V = \frac{4}{3}\pi(6)^3$$

$$V = 288\pi$$

14. Find the volume of a sphere with a diameter of 10 inches rounded to the nearest hundredth of a cubic inch.

$r = 5$

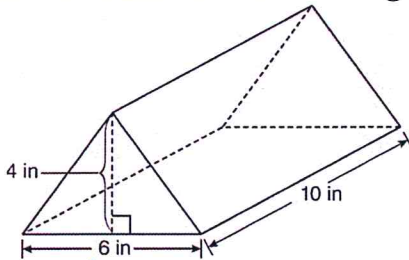
$$V = \frac{4}{3}\pi r^3$$

$$V = \frac{4}{3}\pi(5)^3$$

$$V = 523.60$$

Find the volume of the following triangular prisms

15.

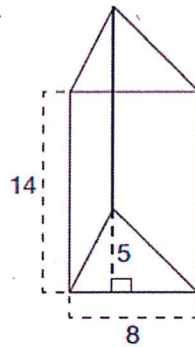


$$V = \frac{1}{2}bhL$$

$$V = \frac{1}{2}(6)(4)(10)$$

$$V = 120 \text{ in}^3$$

16.

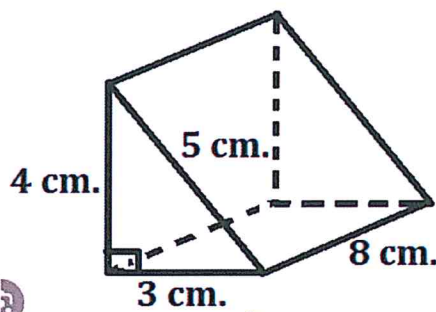


$$V = \frac{1}{2}bhL$$

$$V = \frac{1}{2}(8)(5)(14)$$

$$V = 280$$

17.

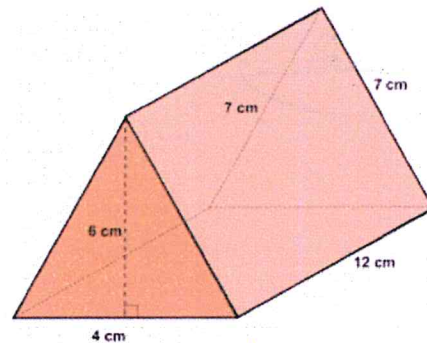


$$V = \frac{1}{2}bhL$$

$$V = \frac{1}{2}(3)(4)(8)$$

$$V = 48$$

18.

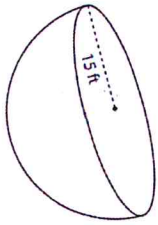


$$V = \frac{1}{2}bhL$$

$$V = \frac{1}{2}(4)(6)(12)$$

$$V = 144$$

19. Find the volume of the shape below in terms of  $\pi$ .

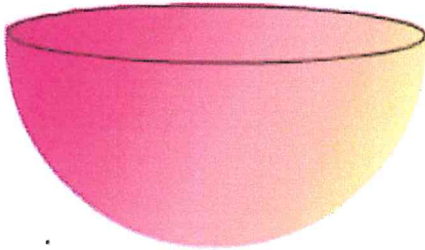


$$V = \frac{1}{2} \left( \frac{4}{3} \pi r^3 \right)$$

$$V = \frac{1}{2} \left( \frac{4}{3} \pi (15)^3 \right)$$

$$V = 2250\pi$$

20. Find the volume of the object below if the diameter is 18.2 meters. Round your answer to the nearest cubic meter.

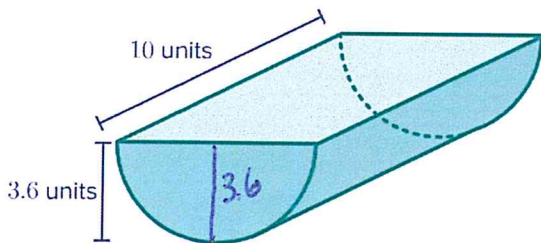


$$V = \frac{1}{2} \left( \frac{4}{3} \pi r^3 \right)$$

$$V = \frac{1}{2} \left( \frac{4}{3} \pi (9.1)^3 \right)$$

$$V = 1578$$

21. Find the volume of the object below to the nearest cubic unit.

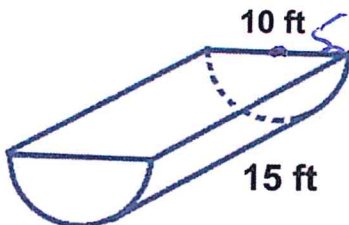


$$V = \frac{1}{2} \pi r^2 h$$

$$V = \frac{1}{2} \pi (3.6)^2 (10)$$

$$V = 204$$

22. Find the volume of the object below in terms of  $\pi$ .



$$V = \frac{1}{2} \pi r^2 h$$

$$V = \frac{1}{2} \pi (5)^2 (15)$$

$$V = 187.5\pi$$



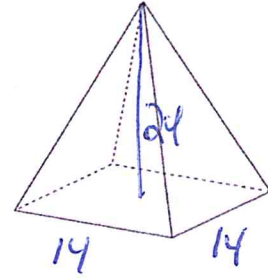
Square pyramid has length=width

23. A regular pyramid has a square base with an edge length of 14 cm and an altitude of 24 cm. Find its volume.

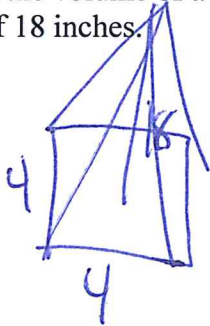
$$V = \frac{1}{3}lwh$$

$$V = \frac{1}{3}(14)(14)(24)$$

$$V = 1568 \text{ cm}^3$$



24. Find the volume of a square pyramid with a base with edge length 4 inches and a height of 18 inches.

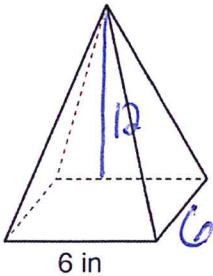


$$V = \frac{1}{3}lwh$$

$$V = \frac{1}{3}(4)(4)(18)$$

$$V = 96 \text{ in}^3$$

25. As shown in the diagram below, a regular pyramid has a square base whose side measures 6 inches. If the altitude of the pyramid measures 12 inches, find its volume.

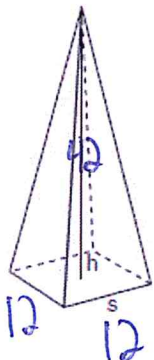


$$V = \frac{1}{3}lwh$$

$$V = \frac{1}{3}(6)(6)(12)$$

$$V = 144 \text{ in}^3$$

26. A side,  $s$ , of the base of the pyramid is 12 meters, and the height,  $h$ , is 42 meters. What is the volume of the pyramid in cubic meters?



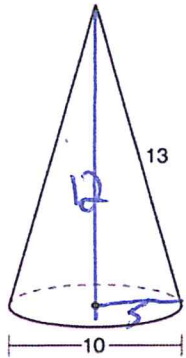
$$V = \frac{1}{3}lwh$$

$$V = \frac{1}{3}(12)(12)(42)$$

$$V = 2016 \text{ m}^3$$

If given slant height, use  $a^2 + b^2 = c^2$

27. Determine and state the volume of the cone, in terms of  $\pi$ .



$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi (5)^2 (12)$$

$$V = 100\pi$$

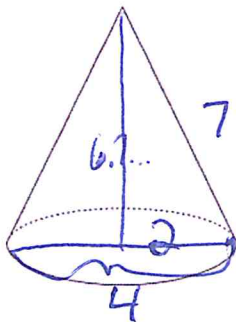
$$a^2 + b^2 = c^2$$

$$5^2 + b^2 = 13^2$$

$$25 + b^2 = 169$$

$$\begin{array}{r} -25 \\ \hline \sqrt{b^2} = \sqrt{144} \\ b = 12 \end{array}$$

28. A cone has a base with a diameter of 4 and a slant height of 7. Find its volume rounded to the nearest tenth.



$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi (2)^2 (6.7)$$

$$V = 28.1$$

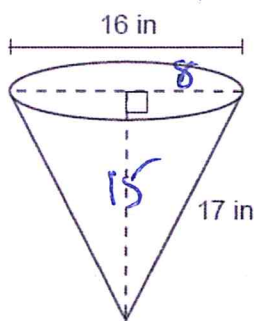
$$a^2 + b^2 = c^2$$

$$2^2 + b^2 = 7^2$$

$$4 + b^2 = 49$$

$$\begin{array}{r} -4 \\ \hline \sqrt{b^2} = \sqrt{45} \\ b = 6.7 \end{array}$$

29. In the diagram below, a cone has a diameter of 16 inches and a slant height of 17 inches. What is the volume of the cone, in terms of  $\pi$ , in cubic inches?



$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi (8)^2 (15)$$

$$V = 320\pi$$

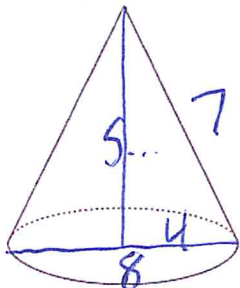
$$a^2 + b^2 = c^2$$

$$8^2 + b^2 = 17^2$$

$$64 + b^2 = 289$$

$$\begin{array}{r} -64 \\ \hline \sqrt{b^2} = \sqrt{225} \\ b = 15 \end{array}$$

30. In the diagram below, a right circular cone has a diameter of 8 and a slant height of 7. Find the volume of the cone rounded to the nearest tenth.



$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi (4)^2 (5)$$

$$V = 96.3$$

$$a^2 + b^2 = c^2$$

$$4^2 + b^2 = 7^2$$

$$16 + b^2 = 49$$

$$\begin{array}{r} -16 \\ \hline \sqrt{b^2} = \sqrt{33} \\ b = 5 \end{array}$$

