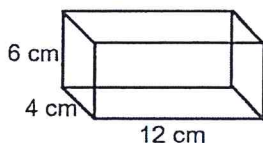


Name Schlansky
Mr. Schlansky

Date _____
Geometry

Calculating Volume

1. Find the volume of the rectangular prism given below



$$V = lwh$$

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

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

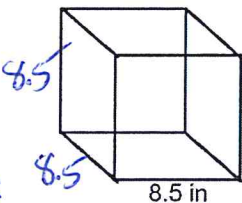
2. Find the volume of a rectangular prism that has dimensions 10 feet by 14 feet by 8 feet.

$$V = lwh$$

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

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

3. Find the volume of the cube shown below.



$$V = lwh$$

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

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

Cube has equal length width and height.

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

- 1) 2.25
2) 3.375

- 3) 9.0
4) 13.5

$$V = lwh$$

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

$$V = 3.375 \text{ cm}^3$$

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

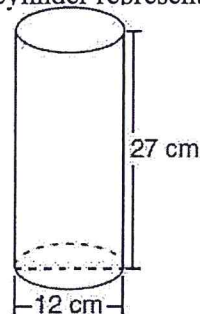
- 1) 162π 3) 972π
2) 324π 4) $3,888\pi$

in terms of π
doubt type π in.

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

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

$$V = 972\pi$$



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

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

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

$$V = 540\pi$$

in terms of π
type π into calculator

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?

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

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

$$V = 226.1946711$$

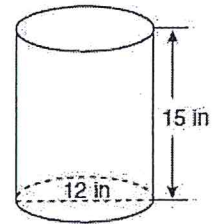
$$V = 226.2$$

type π in

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 to the nearest tenth of a cubic inch?

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



(Not drawn to scale)

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

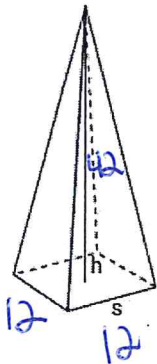
$$V = \pi (6)^2 (15)$$

$$V = 1696.460033$$

$$V = 1696.5$$

type π in

9. 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? $l \text{ and } w = 12$



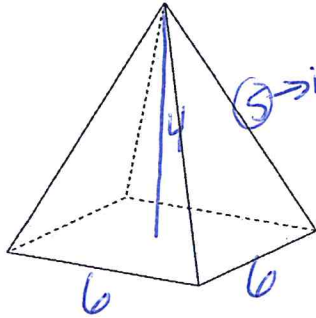
$$V = \frac{1}{3} lwh$$

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

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

10. A regular pyramid has a square base with an edge length of 6 and an altitude of 4, and a slant height of 5. Find its volume.

l and w = 6



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

$$V = \frac{1}{3} (6)(6)(4)$$

$$V = 48 \text{ units}^3$$

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? *type π in*

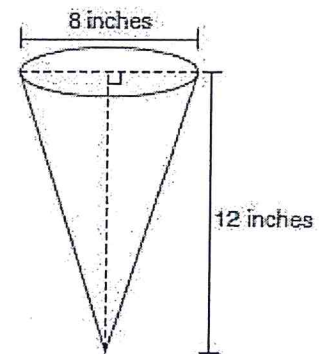
- ① 201 3) 603
2) 481 4) 804

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

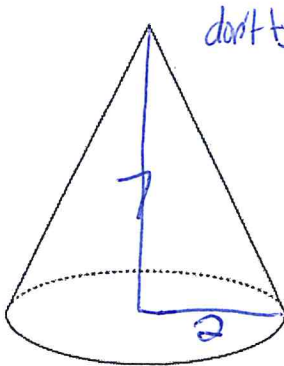
$$V = \frac{1}{3} \pi (4)^2 (12)$$

$$V = 201.0619298$$

$$V = 201 \text{ in}^3$$



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



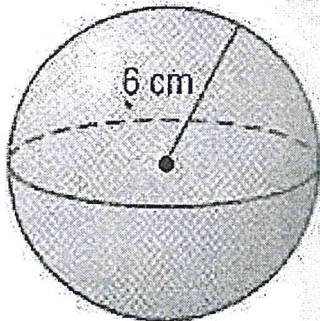
don't type π in

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

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

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

13. Find the volume of the sphere shown below in terms of π *don't type π in*



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

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

$$V = 288\pi$$

14. Find the volume of a sphere with a diameter of 10 inches. in terms of π .
Don't type π in

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

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

$$V = \frac{500\pi}{3}$$

15. A packing carton in the shape of a triangular prism is shown in the diagram below.

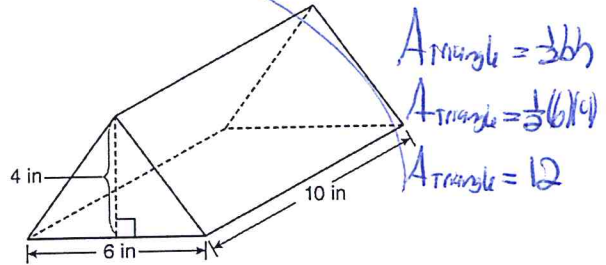
What is the volume, in cubic inches, of this carton?

- 1) 20
- 2) 60
- 3) 120
- 4) 240

V = (area base)(height)

V = (12)(10)

V = 120 in³



16. A hexagonal prism has a base that has an area of 12 square inches. If the altitude is 5 inches, what is the volume of the hexagonal prism?

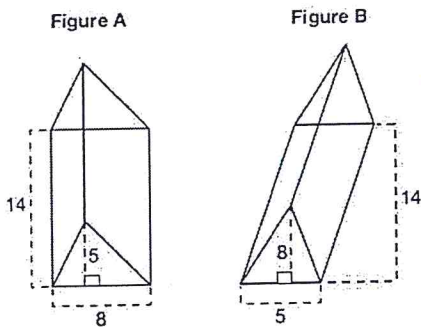
V = (area base)(height)

V = (12)(5)

V = 60 in³

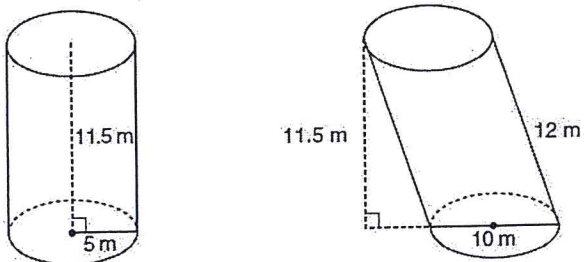
17. The diagram below shows two figures. Figure A is a right triangular prism and figure B is an oblique triangular prism.

Use Cavalieri's Principle to explain why the volumes of these two triangular prisms are equal.



If the area of the bases are the same and the heights are the same, then the volumes are the same.

18. Sue believes that the two cylinders shown in the diagram below have equal volumes. Is Sue correct? Explain why.



Yes, if the area of the bases are the same, and the heights are the same, then the volumes are the same.