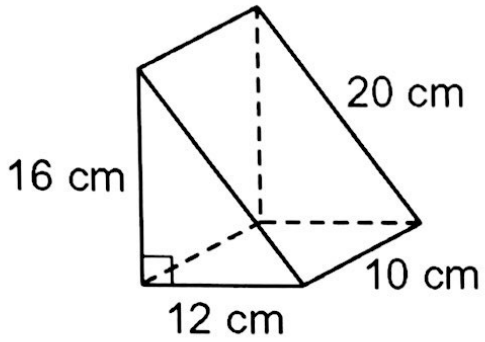
Name Key

Math 8 - Unit 8: Volume Review - Find the volume of each figure. Round all answers to the nearest hundredth. Remember your units. Use pi button.

1)



Work: Volume = _____

$V = Bh$

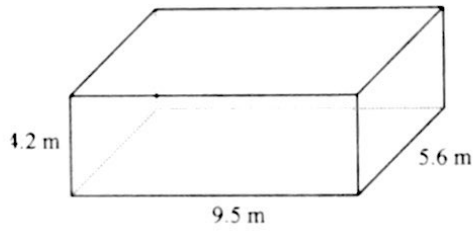
$V = (\frac{1}{2}bh)h$

$V = (\frac{1}{2} \cdot 12 \cdot 16)\,10$

$V = 960\ cm^3$

Answer: $960\ cm^3$

2)



Work: Volume = _____

$V = Bh$

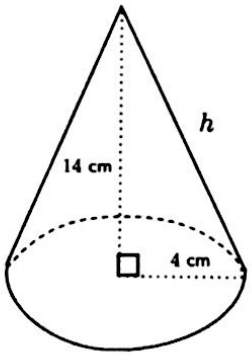
$V = lwh$

$V = (4.2)(9.5)(5.6)$

$V = 223.44\ m^3$

Answer: $223.44\ m^3$

3)



Work: Volume = _____

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

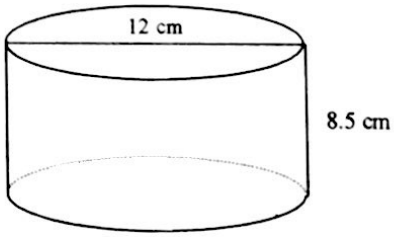
$V = \frac{1}{3}(\pi r^2)h$

$V = \frac{1}{3}\pi \cdot 4^2 \cdot 14$

$V = 234.57\ cm^3$

Answer: $234.57\ cm^3$

4)



Work: Volume = _____

$V = Bh$

$V = \pi r^2 h$

$V = \pi 6^2 (8.5)$

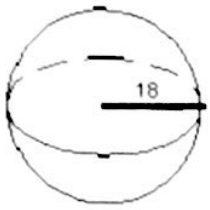
$V = 961.33\ cm^2$

$d = 12$

$r = 6$

Answer: $961.33\ cm^3$

5)



Work:

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

$V = \frac{4}{3}\pi \cdot 18^3$

$V = 24429.02\ in^3$

Volume = _____

Answer: $24429.02\ in^3$

6) A cylindrical container of corn has a diameter of 11 cm and a height of 8 cm. Find the volume of the container of corn.

Work:

$V = Bh$

$V = \pi r^2 h$

$V = \pi (5.5)^2 \cdot 8$

$V = 760.27\ cm^2$

$d = 11\ cm$

$r = 5.5\ cm$

Volume = _____

Answer: $760.27\ cm^3$

7) Pita Mellark has a survival kit in the shape of a cylinder with a height of 10 inches and a diameter of 4 inches. He calculated the volume of the kit to be approximately 502 in^3. Katis said his answer was wrong. Explain Pita's error and find the correct volume.

Pita's Error

He used the diameter instead of the radius.

$V = \pi d^2 h$

$502 = \pi 4^2 \cdot 10$

$502 = 502$

Correct Answer

$V = Bh$

$V = \pi r^2 h$

$V = \pi \cdot 2^2 \cdot 10$

$V = 125.66\ in^3$

$d = 4\ in$

$r = 2\ in$

8) Orange traffic cones, or pylons, come in a variety of sizes. What is the volume in cubic inches of a pylon with height 36 inches and diameter 9 inches?

$d = 9\ in$

$r = 4.5\ in$

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

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

$V = \frac{1}{3} \cdot \pi \cdot (4.5)^2 \cdot 36$

$V = 763.41\ in^3$

Answer: $763.41\ in^3$

9) Fossilized embryos of dinosaurs called Titanosaurid Sauropods have recently been found in spherical eggs in Patagonia. The eggs were 15 cm in diameter. Find the volume of an egg.

$d = 15\ cm$

$r = 7.5\ cm$

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

$V = \frac{4}{3}\pi (7.5)^3$

$V = 1767.15\ cm^3$

Answer: $1767.15\ cm^3$

10)

A cylinder has the dimensions shown in the diagram.

$V = Bh$
$V = \pi r^2 h$
$V = \pi 2^2 . 4$
$V = 50.27 in^3$

$V = Bh$
$V = \pi r^2 h$
$V = \pi 2^2 . 6$
$V = 75.4 in^3$

What happens to the volume of the cylinder when its height is increased by 2?

(A) The volume increases by approximately 25.

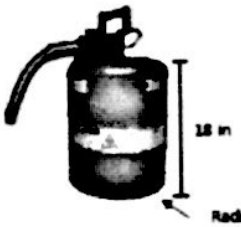
B. The volume increases by approximately 120.

C. The volume increases by exactly 8.

D. The volume increases by exactly 40.

11)

Jim fills his gas container whenever it gets down to $\frac{1}{4}$ full in order to have enough gas for his next mowing job. If the gas container is in the shape of a cylinder, approximately how much gas is left in the gas container when it is time to refill it?



A. 1413 in.^{3}

(B) 353 in.^{3}

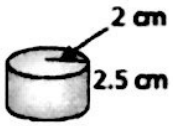
C. 283 in.^{3}

D. 71 in.^{3}

$V = Bh$
$V = \pi r^2 h$
$V = \pi 5^2 . 18$
$V = 14.13.72$
$\times \frac{1}{4}$
$353.43 in^3$

12)

A cylinder has the dimensions marked in the diagram.



$V = Bh$
$V = \pi r^2 h$
$V = \pi 2^2 . 2.5$
$V = 31.42 cm^3$

Which statement about the volume of the cylinder is *most* accurate?

A. The volume is approximately 40 cubic centimeters.

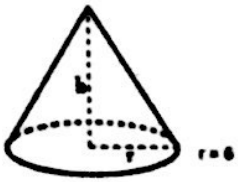
B. The volume is exactly 40 cubic centimeters.

(C) The volume is approximately 30 cubic centimeters.

D. The volume is exactly 30 cubic centimeters.

13)

If the volume of the cone is 108π cubic units, what is the height of the cone?



A. 6 units

B. 7 units

C. 8 units

(D) 9 units

$V = \frac{1}{3} Bh$
$V = \frac{1}{3} \pi r^2 h$
$108\pi = \frac{1}{3} \pi 6^2 . h$
$108\pi = \frac{1}{3} \pi 6^2 h$
$\frac{108\pi}{12\pi} = \frac{12\pi h}{12\pi}$
$9 = h$