

Volume Unit Review

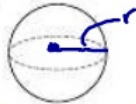
For #1-6, do the following:

A) Name each figure

B) State the volume formula

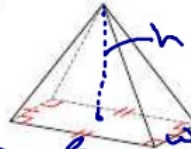
C) Draw and label height, radius, length, width, and apothem as needed for each figure.

1)



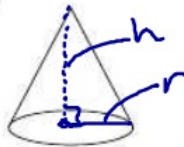
A) sphere B) $V = \frac{4}{3}\pi r^3$

2)



A) rectangular pyramid B) $V = \frac{1}{3}Bh$
 $V = \frac{1}{3}(l \cdot w)h$

3)



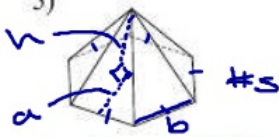
A) cone B) $V = \frac{1}{3}Bh$
 $V = \frac{1}{3}(\pi r^2)h$

4)



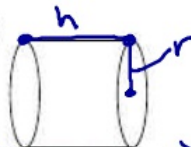
A) triangular pyramid B) $V = \frac{1}{3}Bh$
 $V = \frac{1}{3}(\frac{1}{2}l \cdot w)h$

5)



A) hexagonal pyramid B) $V = \frac{1}{3}Bh$
 $V = \frac{1}{3}(\frac{1}{2} \cdot a \cdot b \cdot \#s)h$

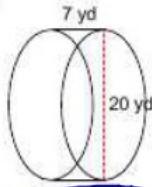
6)



A) cylinder B) $V = Bh$
 $V = (\pi r^2)h$

Find the volume of each figure. Round your answers to the nearest tenth, if necessary.

7)



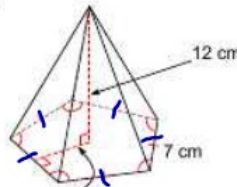
$$V = Bh$$

$$= (\pi r^2)h$$

$$= (3.14)(10^2)20$$

2199.1 yd³

8)



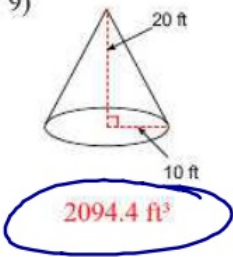
$$V = \frac{1}{3}Bh$$

$$= \frac{1}{3}(\frac{1}{2} \cdot a \cdot b \cdot n)h$$

$$= \frac{1}{3}(\frac{1}{2}(4.8)(7)(5)) \cdot 12$$

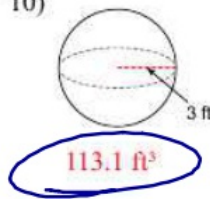
336 cm³

9)



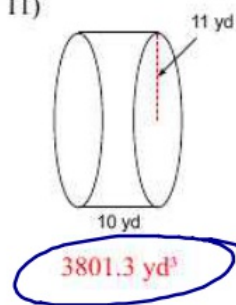
$$\begin{aligned}
 V &= \frac{1}{3} B h \\
 &= \frac{1}{3} (\pi r^2) h \\
 &= \frac{1}{3} (3.14 \cdot 10^2) \cdot 20
 \end{aligned}$$

10)



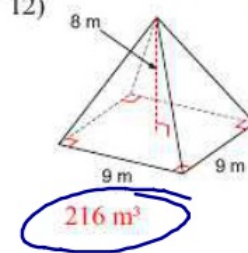
$$\begin{aligned}
 V &= \frac{4}{3} \pi r^3 \\
 &= \frac{4}{3} (3.14) (3^3)
 \end{aligned}$$

11)



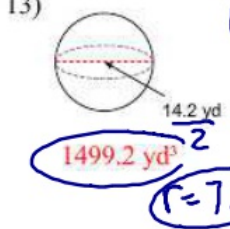
$$\begin{aligned}
 V &= B h \\
 &= (\pi r^2) h \\
 &= (3.14) (10^2) \cdot 10
 \end{aligned}$$

12)



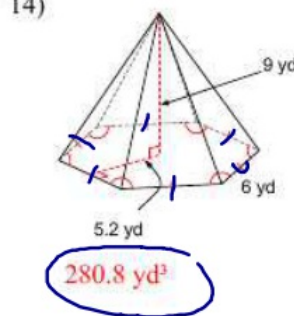
$$\begin{aligned}
 V &= \frac{1}{3} B h \\
 &= \frac{1}{3} (l \cdot w) h \\
 &= \frac{1}{3} (9)(9) \cdot 8
 \end{aligned}$$

13)



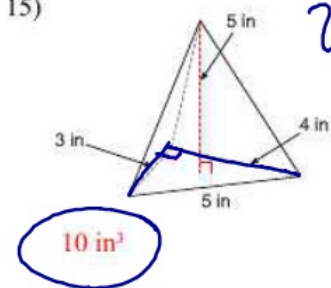
$$\begin{aligned}
 V &= \frac{4}{3} \pi r^3 \\
 &= \frac{4}{3} (3.14) (7.1)^3
 \end{aligned}$$

14)



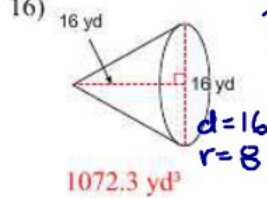
$$\begin{aligned}
 V &= \frac{1}{3} B h \\
 &= \frac{1}{3} (\frac{1}{2} a \cdot b \cdot n) h \\
 &= \frac{1}{3} (\frac{1}{2} (5.2)(6)(6)) 9
 \end{aligned}$$

15)



$$\begin{aligned}
 V &= \frac{1}{3} B h \\
 &= \frac{1}{3} (\frac{1}{2} b \cdot w) h \\
 &= \frac{1}{3} (\frac{1}{2} \cdot 3 \cdot 4) 5
 \end{aligned}$$

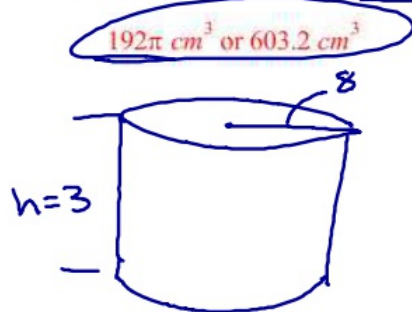
16)



$$\begin{aligned}
 V &= \frac{1}{3} B h \\
 &= \frac{1}{3} (\pi r^2) h \\
 &= \frac{1}{3} (3.14) (8)^2 \cdot 16
 \end{aligned}$$

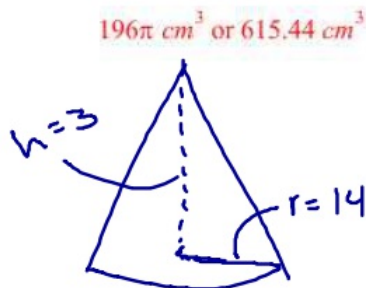
For the following problems, draw and label a picture then answer the question.

- 17) What is the volume of a cylinder whose base has a radius of 8cm and a height of 3cm?



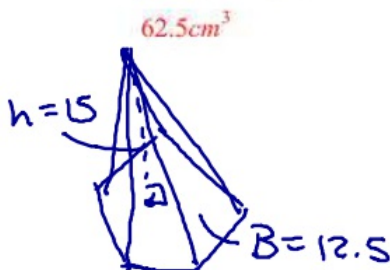
$$\begin{aligned} V &= Bh \\ &= (\pi r^2)h \\ &= \pi(8^2) \cdot 3 = \\ &= (3.14)(8^2) \cdot 3 \end{aligned}$$

- 18) Find the volume of a cone-shaped building with a height of 3cm and a radius of base 14cm.



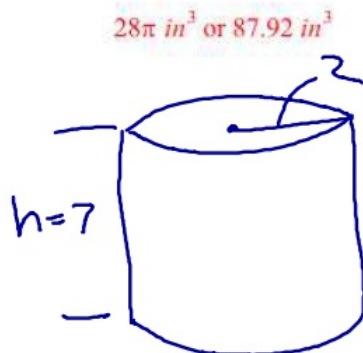
$$\begin{aligned} V &= \frac{1}{3}Bh \\ &= \frac{1}{3}(\pi r^2)h \\ &= \frac{1}{3}(\pi \cdot 14^2 \cdot 3) \end{aligned}$$

- 19) A beehive is in the shape of a pentagonal pyramid. If the base has an area of 12.5cm^2 and a height of 15cm, what is the volume?



$$\begin{aligned} V &= Bh \\ &= 12.5 \cdot 15 \\ &= \end{aligned}$$

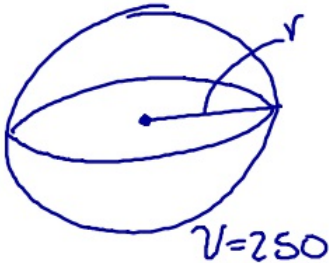
- 20) A cylindrical oil drum is 7 inches high and has a radius of 2 inches. How many cubic inches of oil can the drum hold?



$$\begin{aligned} V &= Bh \\ &= (\pi r^2)h \\ &= \pi(2)^2 \cdot 7 \end{aligned}$$

21) A sphere has a volume of 250cm^3 . What is the radius of the sphere?

3.9 cm



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

$$250 = \frac{4}{3} (3.14) r^3$$

$$\frac{250}{4.19} = \frac{4.19}{4.19} r^3$$

$$\sqrt[3]{59.7 \text{ cm}^3} = \sqrt[3]{r^3}$$

$$3.9 \text{ cm} = r$$

22) The volume of a cylinder is 307.72cm^3 and has a radius of 2cm . What is the height?



$$V = Bh$$

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

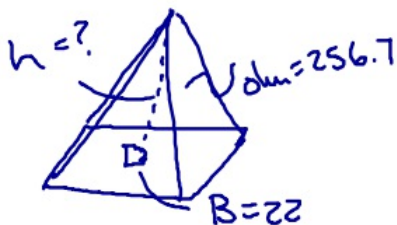
$$307.72 = (3.14)(2^2)h$$

$$\frac{307.72}{12.56} = \frac{12.56}{12.56} h$$

$$24.5 \text{ cm} = h$$

23) The volume of the pyramid at the Louvre Museum is 256.7m^3 and has a base area of 22m^2 . What is the height?

35m



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

$$256.7 = \frac{1}{3} (22)h$$

$$256.7 = 7\bar{3} h$$

$$35.0 \text{ m} = h$$

24) The volume of a cereal box is 217.5in^3 . The height of the box is 12in and the width is 2.5in . What is the length of the box?

7.25in



$$V = l \cdot w \cdot h$$

$$217.5 = l \cdot 2.5 \cdot 12$$

$$\frac{217.5}{30} = \frac{l \cdot 30}{30}$$

$$7.25 \text{ in} = l$$