

Circle with center Y is shown. The measure of the  $\angle XYZ = 75^\circ$  and the length of YD is 9 cm. What is the area of the shaded part of the circle?

A.  $\frac{57\pi}{4} \text{ cm}^2$     B.  $\frac{135\pi}{8} \text{ cm}^2$   
 C.  $\frac{405\pi}{9} \text{ cm}^2$     D.  $\frac{13\pi}{8} \text{ cm}^2$

$\frac{\pi r^2 \theta}{360}$   
 $\frac{\pi (9)^2 (75)}{360}$   
 $\frac{135\pi}{8}$

1

### Volume of Pyramids

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

B stands for the area of the base.

$\frac{3V_{\text{cone}} = V_{\text{cyl}}}{3}$   
 $V_{\text{cone}} = \frac{Bh}{3}$   
 $V_{\text{cone}} = \frac{1}{3} Bh$

2

Find the volume and round to the nearest tenth.

$V = \frac{1}{3} Bh$   
 $V = \frac{1}{3} (5)(5)(10)$   
 $V = 83.3$

3

Find the volume and round to the nearest tenth.

$V = \frac{1}{3} Bh$   
 $\frac{1}{3} (\frac{1}{2} bh) h$   
 $\frac{1}{3} \cdot \frac{1}{2} \cdot 6 \cdot 8 \cdot 7$   
 $56 \text{ cm}^3$

4

### Volume of Cones

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

B stands for the area of the base and the base of a cone will ALWAYS BE A circle

h is the perpendicular distance from the base to the apex

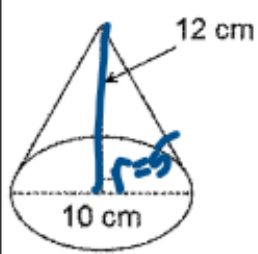
5

3. Find the volume and round to the nearest tenth.

$V = \frac{1}{3} Bh$   
 $\frac{1}{3} \pi r^2 h$   
 $= \frac{1}{3} \pi (2)^2 (5)$   
 $\approx 20.9 \text{ mi}^3$

6

4. Find the volume and round to the nearest tenth.



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

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

$$\approx 314.2 \text{ cm}^3$$

7

5. Find the volume and round to the nearest tenth.



$$V = \frac{1}{3} B h$$

$$10^2 + b^2 = 26^2$$

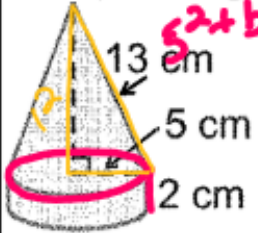
$$b = 24$$

$$V = \frac{1}{3} \pi (10^2) (24)$$

$$\approx 2513.3$$

8

6. Find the volume of the composite figure.



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

$$V_{\text{cylinder}} = \pi (5)^2 (2)$$

$$50 \pi \text{ cm}^3$$

$$V_{\text{cone}} = \frac{1}{3} \pi (5)^2 (12)$$

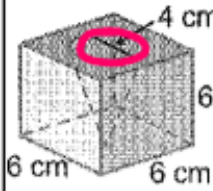
$$100 \pi \text{ cm}^3$$

$$+ 100 \pi \text{ cm}^3$$

$$150 \pi \text{ cm}^3$$

9

7. Find the volume of the composite figure.



$$V_{\text{cube}} = 6^3 = 216 \text{ cm}^3$$

$$V_{\text{cone}} = \frac{1}{3} \pi (2)^2 (6)$$

$$\approx 25.13 \text{ cm}^3$$

$$190.87 \text{ cm}^3$$

10

Volume of a Sphere

(round to the nearest hundredths)

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



$$33.51 \text{ cm}^3$$

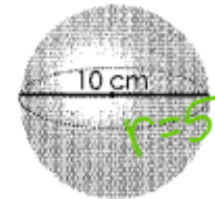
$$\frac{4}{3} \pi (2)^3$$

11

8. Volume of a Sphere

(round to the nearest hundredths)

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

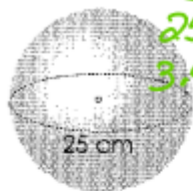


$$\frac{4}{3} \pi (5)^3$$

$$523.59 \text{ cm}^3$$

12

9. The circumference of a great circle of a sphere is 25 inches. Find the volume of the sphere. (Round to the nearest hundredths.)



$$C = 2\pi r$$

$$25 = 2\pi r$$

$$3.97 = r$$

$$V = \frac{4}{3}\pi(3.97)^3$$

$$\approx 262.09 \text{ cm}^3$$

13

## Ratio Relationships

**a:b** Ratio of the **scale factor**  
**a:b** Ratio of the **corresponding sides**  
**a:b** Ratio of the **perimeters**

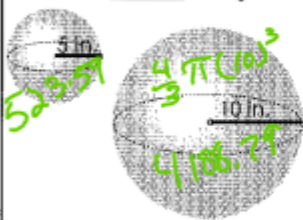
**a<sup>2</sup>:b<sup>2</sup>** Ratio of the **area**

**a<sup>3</sup>:b<sup>3</sup>** Ratio of the **volume**

14

### Volume of a Sphere

A spherical balloon has an initial radius of 5 in. When more air is added, the radius becomes 10 in. How does volume change as the radius changes.



$$1:2$$

$$1^3:2^3 = 1:8$$

15

### Volume of a Sphere

A sphere has an initial volume of 400 cm.<sup>3</sup> The sphere is made bigger by making the radius 4 times larger. What is the new volume of the sphere?

$$1:4$$

$$1^3:4^3 = 1:64$$

$$400 \cdot X$$

$$X = 25600 \text{ cm}^3$$

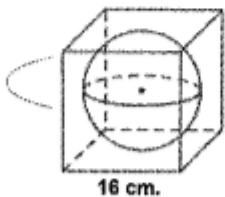
16

### Volume of a Sphere

A sphere is inscribed in a cube-shaped box as pictured below. To the nearest centimeter, what is the volume of the empty space in the box?

$V_{\text{sphere}} =$

$V_{\text{cube}} =$



$V_{\text{empty space}} =$

17

Below is the homework assignment

Geometry

Name \_\_\_\_\_

### Volume - Cones and Pyramids

Date \_\_\_\_\_ Period \_\_\_\_

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

