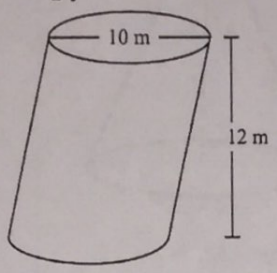
GSE Geometry – Unit 4 Review

Name Key

Find the volume of the following figures.

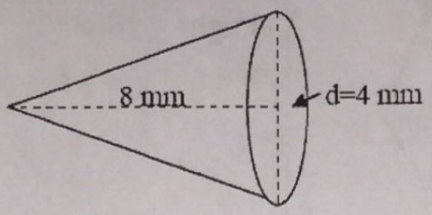
1.



$V = \pi 5^2 12 =$

$V = 942.48 m^3$

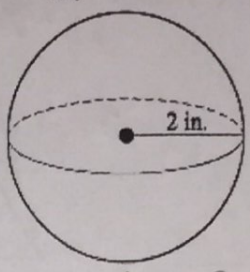
2.



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

$V = 33.51 mm^3$

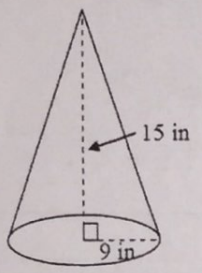
3.



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

$V = 33.51 in^3$

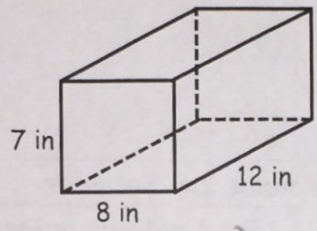
4.



$V = \frac{1}{3}\pi 9^2 15$

$V = 1272.35 in^3$

5.



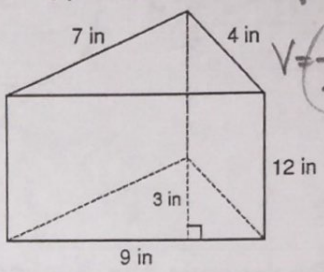
$V = (7 \cdot 8)12$

$V = 672 in^3$

6.

$V = Bh$

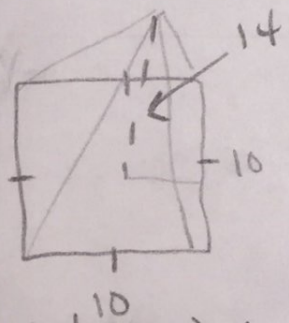
$V = (\frac{1}{2}bh)h$



$V = (\frac{1}{2}3 \cdot 9)12$

$V = 162 in^3$

7. Square Pyramid
side = 10 in
Height = 14 in



$V = \frac{1}{3}(10 \cdot 10)14$

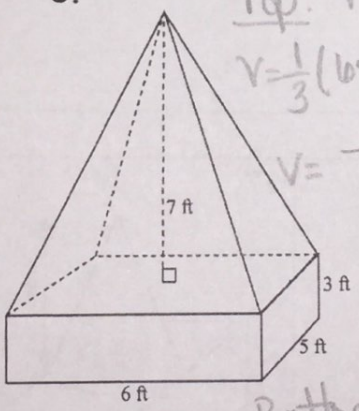
$V = 466.67 in^3$

8.

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

$V = \frac{1}{3}(6 \cdot 5)7$

$V = 70 ft^3$



Bottom: $V = Bh$

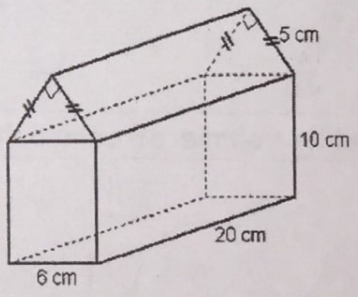
$V = (6 \cdot 5)3$

$V = 90 ft^3$

$70 + 90 = 160 ft^3$

$V = 160 ft^3$

9.



Top: $V = Bh \rightarrow (\frac{1}{2}bh)h$

$V = (\frac{1}{2}5 \cdot 5)20 \rightarrow 250 cm^3$

Bottom: $V = Bh \rightarrow (bh)h$

$V = (6 \cdot 20)10 = 1200 cm^3$

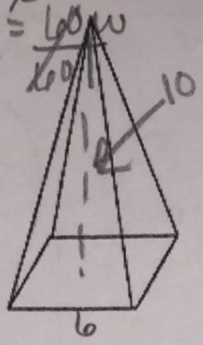
$V = 1450 cm^3$

Working Backwards with Volume

10. Find the missing width of the base.

Volume = 100 cm^3
Length = 6 cm
Height = 10 cm

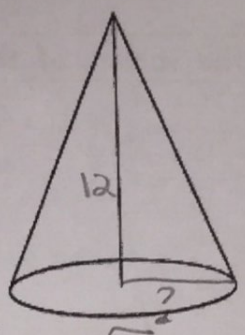
$3 \cdot 100 = \frac{1}{3}(6 \cdot w)10$ ✓
$300 = 60w$
$\frac{300}{60} = \frac{60w}{60}$
$w = 5$



Width = 5 cm

11. Find the radius.

Volume = 8000 in^3
Height = 12 cm

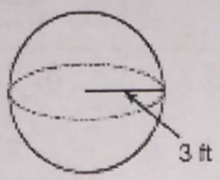


$3 \cdot 8000 = \frac{1}{3}\pi r^2 12 \cdot 3$
$\frac{2400}{12\pi} = \frac{\pi r^2 12}{12\pi}$
$\sqrt{} \quad \sqrt{}$
$\sqrt{636.66} = \sqrt{r^2}$
$r = 8cm$

Radius = 8 cm

Surface Area and Volume of the following Spheres.

12.

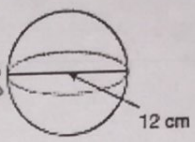


Volume = 113.10 ft^3
SA = 113.10 ft^2

$V = \frac{4}{3}\pi 3^3$
$V = 113.10$

$SA = 4\pi 3^2$
$SA = 113.10 ft^2$

13.



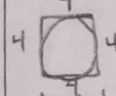
Volume = 904.78 cm^3
SA = 452.39 cm^2

$V = \frac{4}{3}\pi 6^3$
$V = 904.78$

$SA = 4\pi 6^2$
$SA = 452.39$

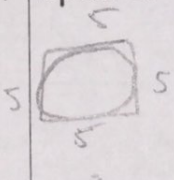
Working Backwards for Surface Area and Volume of Spheres.

14. A sphere is inscribed in a cube of volume 64 cubic meters. **What is the surface area of the sphere?** Give an exact answer and an answer rounded to the nearest hundredth.



$V = 64 m^3$
$V = s^3$
$4^3 = 64$
$s = 4$
$r = 2$
$V = 4\pi 2^2$
$V = 50.3 m^2$

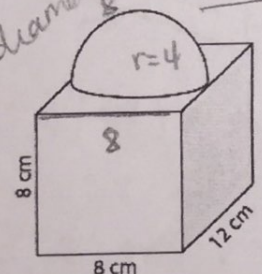
15. A sphere is inside a cube. The cube has a volume of 125 cm^3. **Find volume of the sphere.** Round to the nearest hundredths.



$V = 125 cm^3$
$r = 2.5$
$5^3 = 125$
$V = \frac{4}{3}\pi 2.5^3$
$V = 65.45 cm^3$

Finding volume of composite figures.

16.

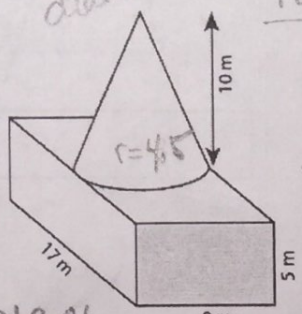


diameter = 8
TOP: $V = \frac{1}{2}\left(\frac{4}{3}\pi 4^3\right)$
$V = 134.04 cm^3$

Bottom:
$V = (8 \cdot 8)12$
$V = 768 cm^3$

$134.04 + 768 =$
Volume = 902.04 cm^3

17.



diameter = 9
Top: $V = \frac{1}{3}\pi(4.5)^2 10$
$V = 212.06$

Bottom:
$V = (17 \cdot 9)5$
$V = 765 m^3$

$212.06 + 765 =$
Volume = 977.06 m^3