How do you find the volume of a composite figure?

Volume of a Prism	$V = B\,h$ B= base area
Rectangular	$V = l \cdot w \cdot h$
Cube	$V = s^3$ (all dimensions equal)
Pyramid	$V = \frac{1}{3}Bh$ (rectangle base)
Cylinder	$V = (\pi r^2)h$
Triangular prism	$V = (\frac{1}{2}bh)h$
Cone	$V = \frac{1}{3}(\pi r^2)h$
sphere	$V = \frac{4}{3}\pi r^3$
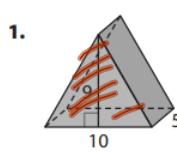
$$B = \text{base area}$$
$$\text{Prism (cylinder)} \Rightarrow V = Bh$$
$$\text{Pyramid (cone)} \Rightarrow V = \frac{1}{3}Bh$$
$$\text{Sphere} \Rightarrow V = \frac{4}{3}\pi r^3$$
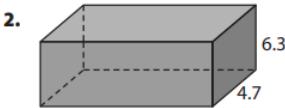
EXERCISES

Find the volume of each figure. Write an exact answer. *(Lessons 18.1–18.4)*
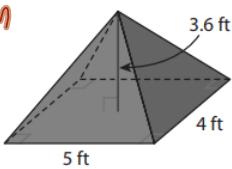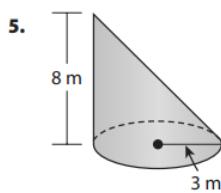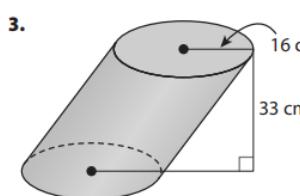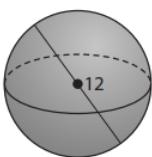
1.

225

$\rightarrow hi$

$B = \frac{1}{2} \cdot 9 \cdot 10 \cdot 5$

10, 5

2.

621.81

6.3
4.7
21

3.

8448π cm³

16 cm
33 cm

$V = Bh$

$\pi(16)^2(33)$

24π

4.

24 ft³

3.6 ft
4 ft
5 ft

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

$\frac{1}{3}(4)(5)(3.6)$

5.

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

$(\frac{1}{3})3^2\pi(8)$

24π

8 m
3 m

6.

288π

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

6

12

7.

299π yd³

$h = 25$
$r = 9$

25 yd   9 yd

$V_{cyl} + V_{sph}$

$2025\pi + 972\pi$

© Houghton N
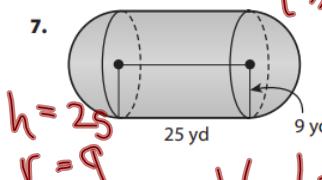
How do you find the surface area of solid figures?

Net	diagram of 3d figure that can be folded to form another 3d figure
Cross Section	A region of a plan that intersects a solid figure
Solid of rotation	when you rotate a 2d figure around an axis to form a 3d figure
Surface Area	total area of all the faces and curved surfaces of a 3d figure
Lateral Area	area of "sides"

"S" "SA" Surface Area $B =$ base area

Prism
Cylinder $= 2B + L$ $V =$ lateral area

Pyramid
Cone $= B + L \rightsquigarrow L = \frac{1}{2}Pl$ Ph $P =$ perimeter circumference

Sphere $= 4\pi r^2$

"S" "SA" Surface Area B = base area

Prism
Cylinder $= 2B + L$ L = lateral area Ph
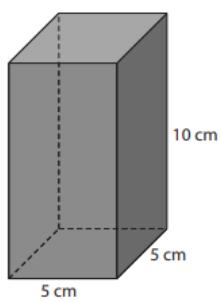
Pyramid
Cone $= B + \frac{1}{2}L \rightsquigarrow L = \frac{1}{2}Pl$ P = perimeter circumference

Sphere $= 4\pi r^2$
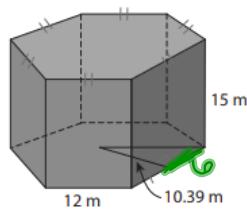
$a^2 + b^2 = c^2$

987-8
pp. 999-1000
1013-1014
1023-1024

3.

10 cm

5 cm

5 cm

4.

15 m

12 m   10.39 m

$$SA = 2B + L$$

$$L = Ph$$

$$6(12) \, 15 = 1080 \, m^2$$

$$B = 12\left(\tfrac{1}{2}bh\right)$$

$$12 \cdot \tfrac{1}{2} \cdot 6 \cdot 10.39 \, m^2$$

$$2(374.04) + 1080$$

$$1828.08 \, m^2$$

Attachments

Wks25-26QuadraticFunctions.docx