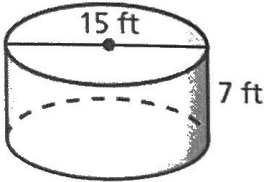


Name: Key

## Chapter 8 Test Study Guide

1. Find the volume to the nearest  $\text{ft}^3$ .

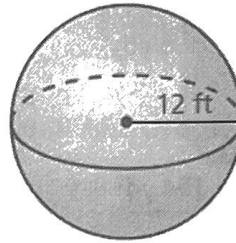
Show your work.

radius = 7.5 ft    height = 7 ft

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

$$= \pi (7.5^2)(7)$$

vol. = 1,237  $\text{ft}^3$  (to the nearest whole)

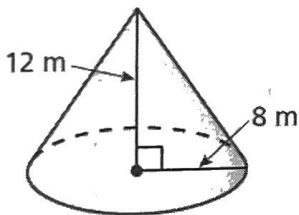
2. Find the volume to the nearest  $\text{ft}^3$ .

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

Show your work.

radius = 12 ft

vol. = 7,238  $\text{ft}^3$  (to the nearest whole)

3. Find the volume to the nearest  $\text{m}^3$ .

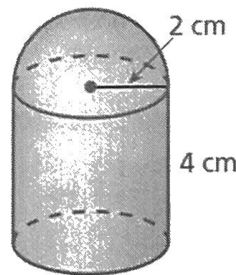
Show your work.

radius = 8 m    height = 12 m

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

$$= \frac{1}{3} \pi \cdot 8^2 \cdot 12$$

volume = 804  $\text{m}^3$  (round to the nearest whole)

4. Find the total volume to the nearest  $\text{cm}^3$ .

Show your work.

hemi,

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

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

cyl.

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

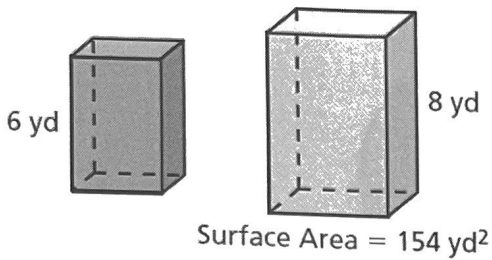
$$= \pi \cdot 2^2 \cdot 4$$

vol. of hemisphere = 17  $\text{cm}^3$  (nearest whole)

vol. of cylinder = 50  $\text{cm}^3$  (nearest whole)

total vol. = 67  $\text{cm}^3$  (nearest whole)

5. The prisms are similar.



a) What is the ratio of the heights (small to big)?

$$\frac{6}{8} = \frac{3}{4}$$

b) What is the ratio of the surface areas (small to big)?

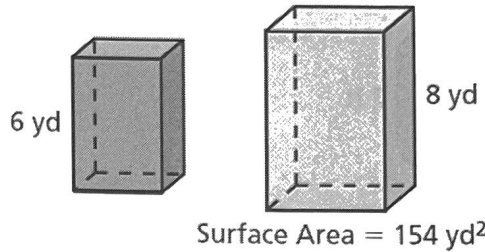
$$\frac{3^2}{4^2} = \frac{9}{16}$$

c) What is the ratio of the volumes (small to big)?

$$\frac{3^3}{4^3} = \frac{27}{64}$$

6. The prisms are similar.

Find the surface area of the small prism.



Show your work.

In the proportion you write, use the ratio you wrote for 5b) to the left.

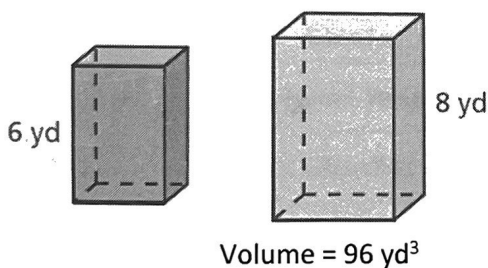
$$\frac{9}{16} = \frac{A}{154} \quad 16A = 9(154)$$

$$A = \frac{9(154)}{16}$$

Small prism surface area = 87 yd<sup>2</sup>

7. The prisms are similar.

Find the volume of the small prism.



Show your work.

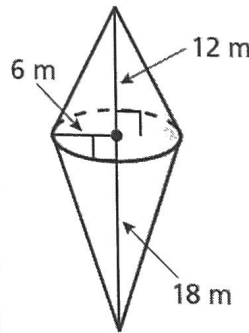
In the proportion you write, use the ratio you wrote for 5c) above.

$$\frac{27}{64} = \frac{V}{96} \quad 64V = 27(96)$$

$$V = \frac{27(96)}{64}$$

Small prism volume = 41 yd<sup>3</sup>

4. Find the total volume to the nearest m<sup>3</sup>.



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

$$= \frac{1}{3}\pi \cdot 6^2 \cdot 12$$

$$= 452$$

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

$$= \frac{1}{3}\pi \cdot 6^2 \cdot 18$$

$$= 679$$

Show your work.

vol. of one cone = 452 m<sup>3</sup> (nearest whole)

vol. of other cone = 679 m<sup>3</sup> (nearest whole)

total vol. = 1,131 m<sup>3</sup> (nearest whole)

9. The ratio of the diameters of two similar beach balls is 3 to 5.



- a) What is the ratio of the volumes (small to big)?

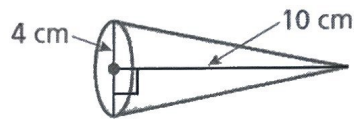
$$\frac{3^3}{5^3} = \frac{27}{125}$$

- b) If the volume of the small ball is 900 cubic inches, find the volume of the large ball to the nearest cubic inch

$$\frac{27}{125} = \frac{900}{V}$$

Big ball vol.: 4167 in.<sup>3</sup> (to the nearest whole)  $V = 900(125)/27$  volume = 42 cm<sup>3</sup> (round to the nearest whole)

10. Find the volume to the nearest cm<sup>3</sup>.



Show your work.

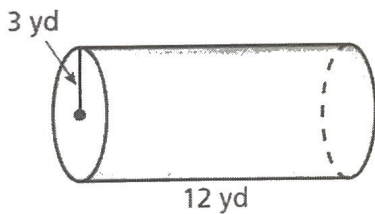
radius = 2 cm height = 10 cm

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

$$= \frac{1}{3}\pi \cdot 2^2 \cdot 10$$

$$\approx$$

11. Find the volume to the nearest yd<sup>3</sup>.



Show your work.

radius = 3 yd height = 12 yd

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

$$= \pi \cdot 3^2 \cdot 12$$

volume = 339 yd<sup>3</sup> (round to the nearest whole)

12. Find the height ( $h$ ) of the cylinder to the nearest inch.

Volume = 25 in.<sup>3</sup>

3 in.



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

$$25 = \pi (1.5)^2 h$$

$$\frac{25}{\pi (1.5)^2} = h$$

Show your work.

radius = 1.5 in. volume = 25 in.<sup>3</sup>

$h =$  4 in. (round to the nearest whole)

# Mathematics Reference Sheets

## Grades 5 -8

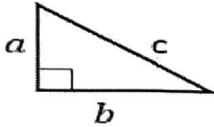
### Assessment Reference Sheet

#### Grade 8

1 inch = 2.54 centimeters  
 1 meter = 39.37 inches  
 1 mile = 5280 feet  
 1 mile = 1760 yards  
 1 mile = 1.609 kilometers

1 kilometer = 0.62 mile  
 1 pound = 16 ounces  
 1 pound = 0.454 kilograms  
 1 kilogram = 2.2 pounds  
 1 ton = 2000 pounds

1 cup = 8 fluid ounces  
 1 pint = 2 cups  
 1 quart = 2 pints  
 1 gallon = 4 quarts  
 1 gallon = 3.785 liters  
 1 liter = 0.264 gallons  
 1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pythagorean Theorem	 $a^2 + b^2 = c^2$