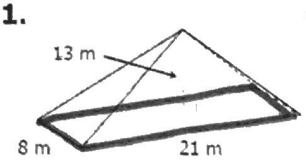
8.8 Unit 8 Quiz II Study Guide

Name: Key

Date: _____ Period: _____

Directions: Find the **volume** of each figure. Round to the nearest hundredth when necessary.

1.



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

B = rectangle

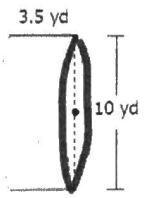
$B = bh$

$B = 8 \cdot 21 = 168$

$h = 13$

$V = (\frac{1}{3})(168)(13) =$ **$728 m^3$**

2.



$V = Bh$

B = circle (πr^2)

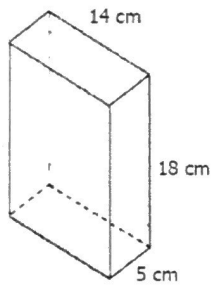
$B = \pi(5^2) = 25\pi$

$h = 3.5$

$V = (25\pi)(3.5) =$ **$87.5\pi\ yd^3$**

$274.89\ yd^3$

3.

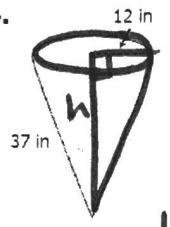


$V = lwh$

$V = 14(18)(5)$

$V =$ **$1260 cm^3$**

4.



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

B = circle (πr^2)

$B = \pi(12^2) = 144\pi$

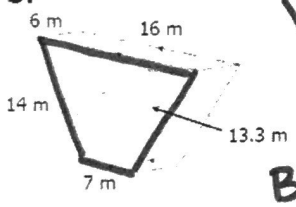
$h^2 + 12^2 = 37^2$

$h = 35$

$V = \frac{1}{3}(144\pi)(35) =$ **$1680\pi\ in^3$**

$5277.88\ in^3$

5.



$V = Bh$

B = trapezoid

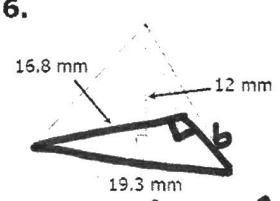
$B = \frac{1}{2}h(b_1 + b_2)$

$B = \frac{1}{2}(13.3)(7+16)$

$B = 152.95$ $h = 6$

$V = (152.95)(6) =$ **$917.7 m^3$**

6.



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

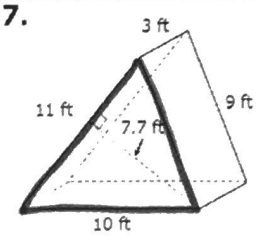
B = triangle $(\frac{1}{2}bh)$

$B = \frac{1}{2}(9.5)(16.8)$

$b^2 + 16.8^2 = 19.3^2$ $B = 79.8$ $h = 12$

$b = 9.5$ $V = \frac{1}{3}(79.8)(12) =$ **$319.2 mm^3$**

7.



$V = Bh$

B = triangle

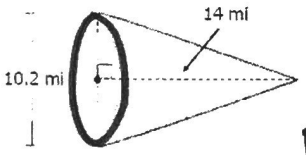
$B = \frac{1}{2}bh$

$B = \frac{1}{2}(11)(7.7)$

$B = 42.35$ $h = 3$

$V = (42.35)(3) =$ **$127.05 ft^3$**

8.



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

B = circle (πr^2)

$B = \pi(5.1^2)$

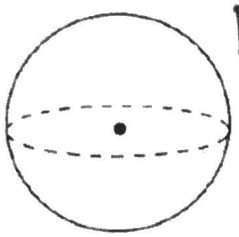
$B = 26.01\pi$

$h = 14$

$V = (\frac{1}{3})(26.01\pi)(14) =$ **$121.38\pi\ mi^3$**

$381.33\ mi^3$

9. Find the diameter of the sphere:



$V = 686\ yd^3$

$d = 10.94yd$

$\frac{3}{4} \cdot 686 = \frac{4}{3}\pi r^3 \cdot \frac{3}{4}$ cube root

$\frac{514.5}{\pi} = \frac{\pi r^3}{\pi}$ $\sqrt[3]{163.77} = \sqrt[3]{r^3}$

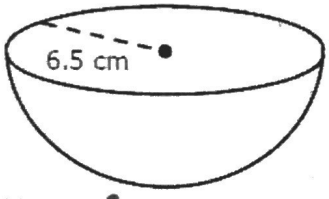
$r = 5.47$ $d = 10.94$

10. If the dimensions of a figure are doubled, how many times larger will the volume be?

$(2)^3 = 8$

Volume is multiplied by 8.

11. Find the volume of the hemisphere:



$575.17cm^3$

$V = \frac{\frac{4}{3}\pi r^3}{2}$ $V = \frac{\frac{4}{3}\pi(6.5^3)}{2} =$

12. Find the diameter of a hemisphere with a volume of 4,601.39m.

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

$d = 26m$

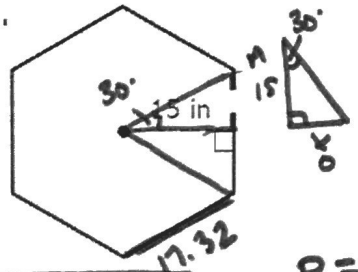
$2 \cdot 4601.39 = \frac{4}{3}\pi r^3 \cdot \frac{2}{1}$

$\frac{3}{4} \cdot 9202.75 = \frac{4}{3}\pi r^3 \cdot \frac{3}{4}$

$\frac{6902.09}{\pi} = \frac{\pi r^3}{\pi}$ $\sqrt[3]{2197} = \sqrt[3]{r^3}$

$r = 13 \cdot 2$

13. Find the area: $A = \frac{1}{2}ap = (\frac{1}{2})(15)(103.92)$



$\tan 30 = \frac{x}{15}$

$15\tan 30 = 8.66$

$8.66 \times 2 = 17.32$

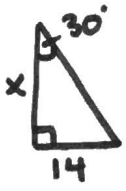
$P = 17.32(6)$

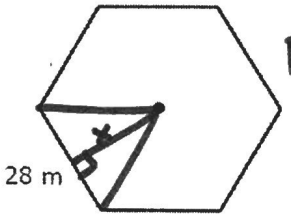
$P = 103.92$

$A = 779.4in^2$

14. Find the area:

$A = \frac{1}{2}ap$





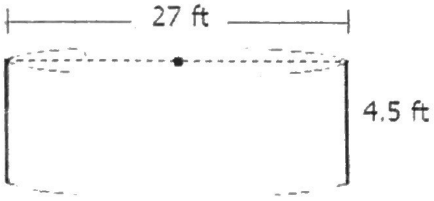
$P = 168$

$\tan 30 = \frac{14}{x}$

$x = \frac{14}{\tan 30} = 24.25$

$A = \frac{1}{2}(24.25)(168) = 2037in^2$

15. A diagram of Eric's pool is shown below. He plans to fill his pool to a depth of 4 feet with a garden hose that has an 80 ft^3 per hour flow rate. How many hours will it take to fill the pool?



$V = Bh$

$B = \text{circle}(\pi r^2)$

$B = \pi(13.5^2)$

$B = 182.25\pi$

$h = 4$ ← only wants to fill it to 4 ft.

$V = (182.25\pi)(4)$

$V = 2290.22$

$\text{hours} = \frac{2290.22}{80} =$

28.63 hours