Name KEY Date _____ Period ____ **Geometry with Trig**

Unit 10 Review Sheet

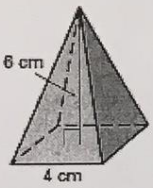
olume:

Prism: $V = Bh$ Cylinder: $V = \pi r^2 h$ Pyramid: $V = \frac{1}{3}Bh$

Cone: $V = \frac{1}{3}\pi r^2 h$ Sphere: $V = \frac{4}{3}\pi r^3$

Show formulas/substitution, round to the nearest hundredth (*unless otherwise stated*), and include correct units.

1. Find the volume of the regular pyramid.



$V = \frac{1}{3}Bh$ $V = 32$

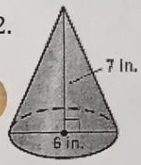
$V = \frac{1}{3}(4 \cdot 4)(6)$

$V = \frac{1}{3}(96)$

$V =$ 32 cm³

Find the volume of the right solid or sphere.

2.



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

$V = \frac{1}{3}\pi(3)^2(7)$

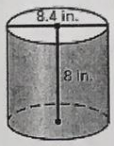
$V = \frac{1}{3}\pi(9)(7)$

$V = 21\pi$

$r = 3$

$V \approx$ 65.97 in³

3.



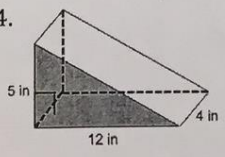
$r = 4.2$ $V = \pi r^2 h$

$V = \pi(4.2)^2(8)$

$V = 141.12\pi$

$V \approx$ 443.34 in³

4.



$V = Bh$

$V = (\frac{1}{2} \cdot 12 \cdot 5) \cdot 4$

$V = (30)(4)$

$V = 120$

$V =$ 120 in³

5.

$V = \frac{4}{3}\pi(4.25)^3$

$V \approx 321.56$

$r = 4.25$

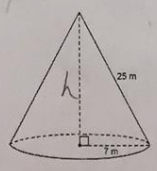
$V \approx$ 321.56 in³

6. Find the volume of the cone.

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

$V = \frac{1}{3}\pi(7)^2(24)$

$V = 392\pi$



$7^2 + h^2 = 25$

$h^2 = 576$

$h = 24$

$V \approx$ 1231.50 m³

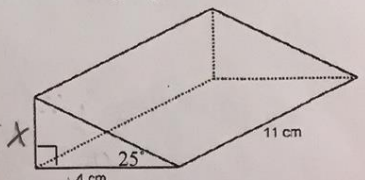
7. Find the area of the base of the right prism.

$\tan(25) = \frac{x}{4}$

$x = 4\tan(25)$

$A = \frac{1}{2}(4)(4\tan(25))$

$A \approx 3.73$



Area of Δ base $= \frac{1}{2}bh$

Area of base ≈ 3.73 cm²

8. The circumference of a great circle of a sphere is 13.8π ft. Find the volume of the sphere.

$C = 13.8\pi$ $\quad V = \frac{4}{3}\pi r^3$

$\pi d = 13.8\pi$ $\quad V = \frac{4}{3}\pi(6.9)^3$

$d = 13.8$ $\quad V = 1376.06$

$\hookrightarrow r = 6.9$

$V \approx$ 1376.06 ft^3

9. A right cylinder has a diameter of 24 mm and a volume of 216π mm^3. What is its height?

$r = 12$ $\quad 216\pi = \pi(12)^2 h$

$V = \pi r^2 h$ $\quad \frac{216\pi}{144\pi} = \frac{\pi(144)h}{144\pi}$

$h = 1.5$

$h =$ 1.5 mm

10. Find the volume of a hemisphere, given a diameter of 18 inches. *Leave your answer in terms of π.*

$r = 9$ $\quad V = \frac{2}{3}\pi r^3$

$V = \frac{2}{3}\pi(9)^3$

$V = \frac{2}{3}\pi(729)$ $\quad V = 486\pi$ in^3

$V =$ 486π in^3

11. Find the depth of a rectangular cake pan if it is 13 inches long by 9 inches wide and has a volume of 351 in^3.

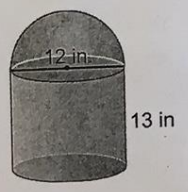
$V = Bh$ $\quad 351 = (13 \cdot 9)h$

$351 = 117h$

$h = 3$

depth = 3 in

12. Find the volume of the composite solid created when a hemisphere is placed on a cylinder. *Round your answer to the nearest hundredth.*



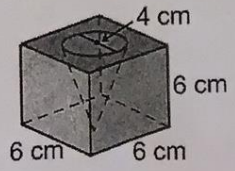
$V_{hemisphere} = \frac{2}{3}\pi(6)^3$ $\quad V_{cylinder} = \pi(6)^2(13)$

$= \frac{2}{3}\pi(216)$ $\quad = \pi(36)(13)$

$= 144\pi$ $\quad = 468\pi$

$V = 144\pi + 468\pi = 612\pi \approx 1922.65$ $\quad V \approx$ 1922.65 in^3

13. Find the volume of the composite solid formed when the cone is cut out of the cube. *Round your answer to the nearest hundredth.*



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

$= 216$ $\quad = \frac{1}{3}\pi(4)(6)$

$= \frac{1}{3}\pi(24)$

$= 8\pi$

Volume $= 216 - 8\pi \approx 190.87$

$V \approx$ 190.87 cm^3