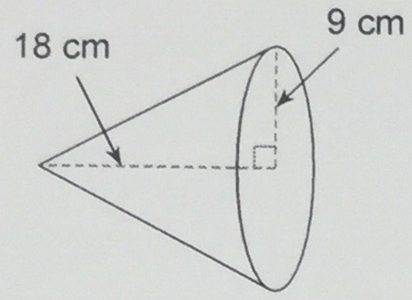
Accelerated Coordinate Algebra Name _____ Pe

Section 29.1--29.3--Study Guide

Date _____ Period _

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

1)

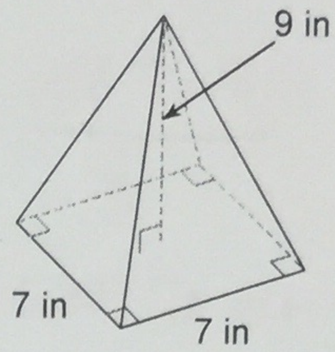


$\frac{\pi \cdot r^2 \cdot h}{3}$

$\frac{\pi \cdot 9^2 \cdot 18}{3}$

1526.81 cm³

2)

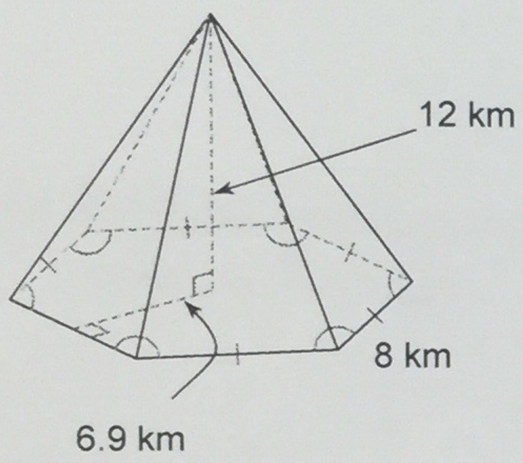


$\frac{L \cdot w \cdot h}{3}$

$\frac{7 \cdot 7 \cdot 9}{3}$

147 in³

3)

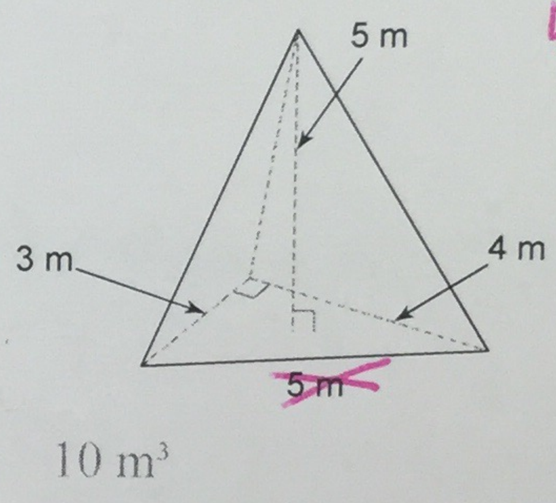


$a \cdot b \cdot h$

$6 \cdot 9 \cdot 8 \cdot 12$

662.4 km³

4)

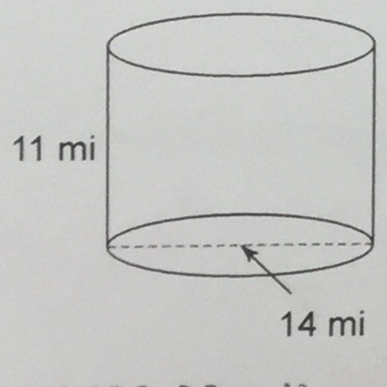


$\frac{L \cdot w \cdot h}{6}$

$\frac{3 \cdot 5 \cdot 4}{6}$

10 m³

5)

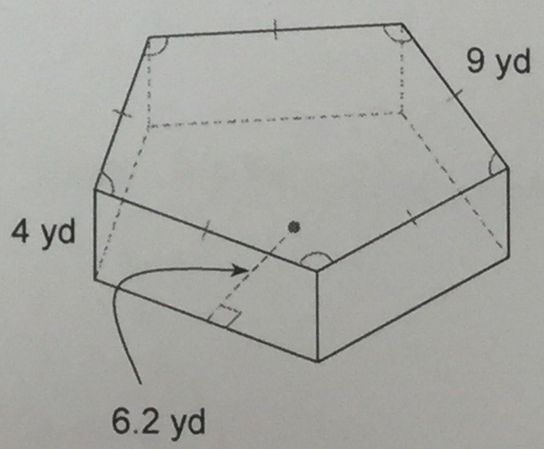


$\pi \cdot r^2 \cdot h$

$\pi \cdot 7^2 \cdot 11$

1693.32 mi³

6)



$\frac{5a \cdot bh}{2}$

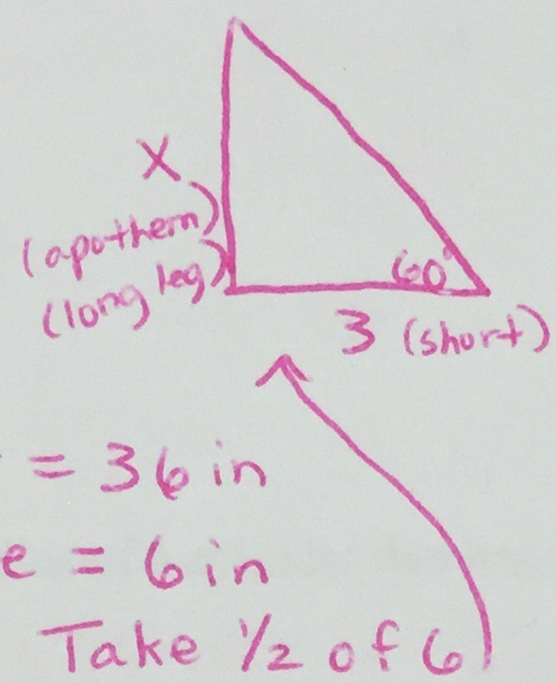
$\frac{5 \cdot 6 \cdot 2 \cdot 4 \cdot 9}{2}$

558 yd³

Find the area of each figure. Round your answer to the nearest tenth.

7) A regular hexagon with a perimeter of 36 in.

93.5 in²



Perimeter = 36 in
Each side = 6 in
Take ½ of 6

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

Use 30-60-90

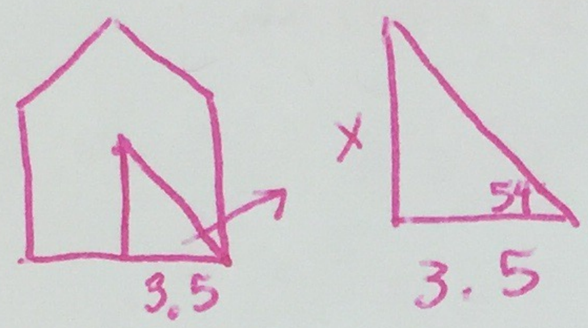
$X = 3\sqrt{3}$

$A = \frac{1}{2}(3\sqrt{3})(36)$

$A = 93.5$

8) A regular pentagon measuring 7 ft on each side.

84.3 ft²



Angle

$\frac{180(3)}{5} = 108$

•divide in half!

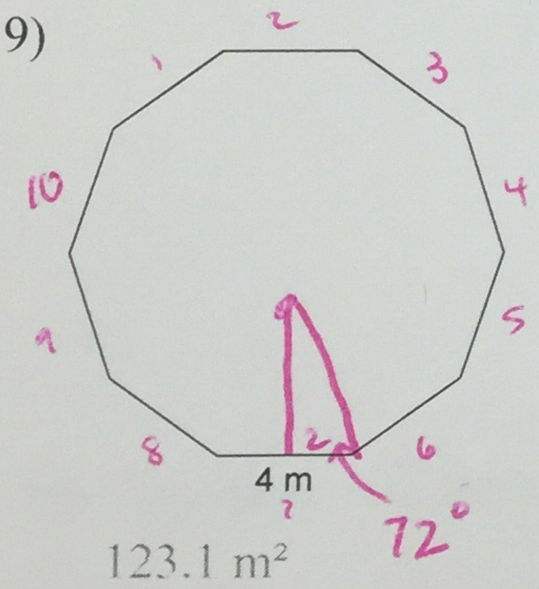
$\tan(54) = \frac{X}{3.5}$

$X = 4.817336722$ (use "ans" button for more accurate calculations)

$A = \frac{1}{2}(\uparrow)(35)$

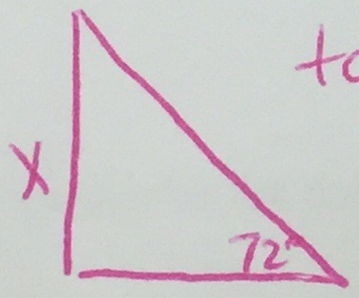
$A = 84.3$

9)



123.1 m²

$\frac{180(8)}{10}$



$\tan(72) = \frac{X}{2}$

$X = 6.155367074$

2

$A = \frac{1}{2}(\uparrow)(40)$

$A = 123.1$

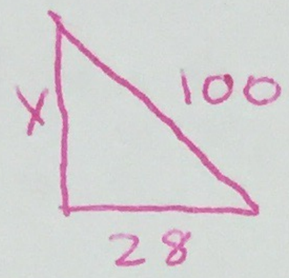
10) A rectangular prism has a volume of 24 *inches*^{3}. If the area of the base is 12 *inches*^{2}, what is the height of the prism?

$V = L \cdot W \cdot h$ (area of base)

$24 = 12 \cdot h$

$2 = h$

11) Find the volume of a cone that has a slant height of 100 *ft* and a radius 28 *ft*. Give your answer in both terms of π and rounded to the nearest tenth.



$x = 96$

$\text{cone} = \frac{\pi \cdot r^2 \cdot h}{3}$

$\frac{\pi \cdot 28^2 \cdot 96}{3}$

25088π or 78816.3

12) Find the radius of a cylinder that has a volume of $200\pi\ cm^3$ and a height of $8cm$.

$\text{Cylinder} = \pi \cdot r^2 \cdot h$

$200\pi = \pi \cdot r^2 \cdot 8$

$25 = r^2$

$5 = r$

13) Find the height in centimeters of a square pyramid with a volume of 243 cm^3 and a base edge length equal to the height.

square means Length & width are same
- this says height is the same as Length
so all 3 dimensions must be the same

$\frac{L \cdot w \cdot h}{3} \rightarrow \frac{L \cdot L \cdot L}{3} = \sqrt{243} \rightarrow L^3 = 729$ (3 ×)

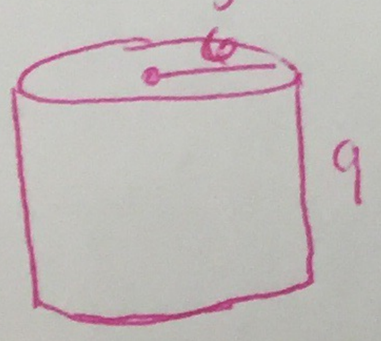
$L = \sqrt[3]{729}$

$L = 9$ so $h = 9$

14) The radius and height of a cylinder are mutliplied by $\frac{2}{3}$. Describe the effect on the volume.

Cylinder - $\pi \cdot r^2 \cdot h$

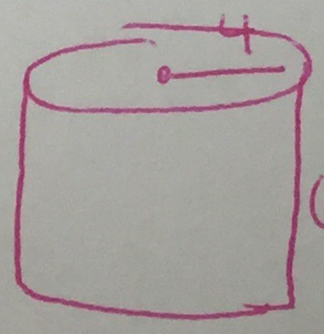
Original (I made this up)



$\pi \cdot 6^2 \cdot 9$

$= 324\pi$

New ($\times \frac{2}{3}$)



$\pi \cdot 4^2 \cdot 6$

$= 96\pi$

The effect is that it shrinks by $\frac{8}{27}$.

Why? $\left(\frac{2}{3}\right)^3$ ← cube b/c volume is cubed

$\frac{2^3}{3^3} = \frac{8}{27}$