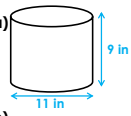
Warmup $3/(7 \div \frac{1}{3})$

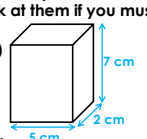
GET A WHITEBOARD + CALCULATOR!

Find the volume of each figure. Try to do it without looking at your notes, but you can look at them if you must.

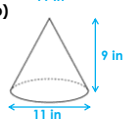
1a)



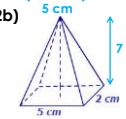
2a)



1b)



2b)



(You have not learned pyramids yet…however, see if you can guess how they work based on the other problems)

HW Answers: p.593,601,609

p. 593

1) 141.4 in^3
2) 103.4 m^3
3) 834.1 lb

(If you rounded before multiplying by 59, its 831.9 lb)

4) 2580.3 cm^3

p. 601

5) 102.6 in^3
6) 15.9 m^3
7) 1608.5 cm^3
8) 1338.3 cm^3

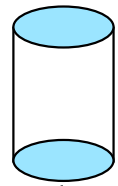
p. 609

2) 904.8 yd^3
7) Volume is 268.1 in^3
107.2 seconds
8) 658.5 ft^3

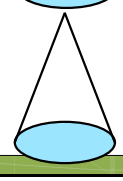
Table of Contents (2nd Semester)

DIFFERENCE BETWEEN CYLINDERS & CONES

- Cylinders go from **CIRCLE** to **CIRCLE.**

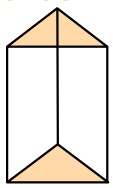


- Cones go from a **CIRCLE** to a **POINT.**

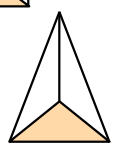


DIFFERENCE BETWEEN PRISMS & PYRAMIDS

- Prisms go from **BASE** to **BASE.**

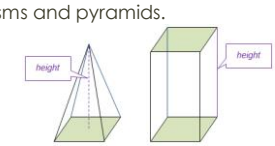


- Pyramids go from a **BASE** to a **POINT.**



Pyramids

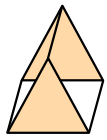
- The same thing happens with rectangular prisms and pyramids.



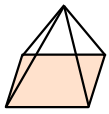
Any pyramid: Volume is 1/3 of the prism with the same base and height

Rectangular or Square Pyramid: $V = \frac{1}{3}(lwh)$

Which shape is it???

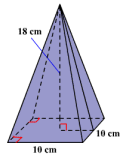


Triangluar Prism
(Area of triangle times height of prism)



Square Pyramid
(Area of square times height of pyramid)

Find the volume:



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

Volume = $\frac{1}{3}(10 \cdot 10) \cdot 18$

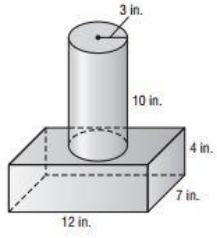
Volume $= 600\ cm^3$

REMEMBER, PYRAMIDS ARE JUST LIKE CONES

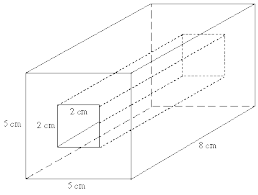
Cone = 1/3 of a cylinder
Pyramid = 1/3 of a prism

WHITEBOARDS!!!

Find the volume:



Find the volume.



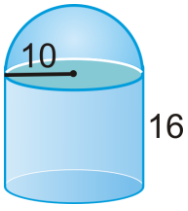
Volume = big prism – hole

$V = 5 \cdot 5 \cdot 8 - 2 \cdot 2 \cdot 8$

$V = 200 - 32$

$V = 168\ cm^3$

Find the volume:



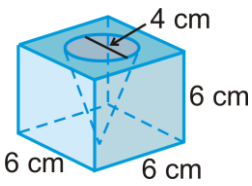
Volume = cylinder + $\frac{1}{2}(sphere)$

Volume = $\pi \cdot 10^2 \cdot 16 + \frac{1}{2}\left(\frac{4}{3}\pi \cdot 10^3\right)$

Volume = $5026.5 + \frac{1}{2}(4188.8)$

Volume $\approx 7120.9\ units^3$

Find the volume:



Volume = cube – cone

Cube = $6 \cdot 6 \cdot 6$

Cube = 216

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

Cone ≈ 25.1

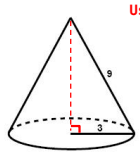
Volume $\approx 216 - 25.1$

Volume $\approx 190.9\ cm^3$

Find the volume:

- Can you figure out what you need to do??????

The height is perpendicular to the base. Use the Pythagorean Theorem to find it.



$3^2 + h^2 = 9^2$

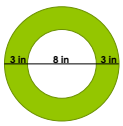
$h = \sqrt{72}$ or ≈ 8.49

$V = \frac{1}{3}\pi \cdot 3^2 \cdot \sqrt{72}$ (More exact than using 8.49)

$V = \frac{1}{3}\pi \cdot 3^2 \cdot \sqrt{72}$

$V \approx 80.0\ units^3$

Find the area of the shaded region.



Area = big circle – small circle

Diameter of big circle = 14, radius = 7

Diameter of small circle = 8, radius = 4

$A = \pi(7)^2 - \pi(4)^2$

$A = 49\pi - 16\pi$

$A = 33\pi$ (exact)

$A \approx 103.7\ in^2$ (rounded)