## Warmup $3 /$ (The sum of the whole numbers

 from 2 to 7)Find the volume of the composite figures.
1)

2)

$4500-1500=3000 \mathrm{ft}$

## Find the volume:



Top Half-Cylinder

$$
\begin{array}{rl}
V & =\frac{1}{2}\left(\pi r^{2} \cdot h\right) \\
V & =\frac{1}{2}\left(\pi \cdot 1^{2} \cdot 5\right) \\
V & V=\frac{1}{2}\left(\pi r^{2} \cdot h\right) \\
V & \approx \frac{1}{2}(15.7) \\
V & \left.\approx 7.852^{2} \cdot 5\right) \\
\mathrm{mm}^{3} & V
\end{array}
$$

Prism

$$
\begin{aligned}
V & =5 \cdot 4 \cdot 2 \\
V & =40 \mathrm{~mm}^{3}
\end{aligned}
$$

TOTAL VOLUME:
$V \approx 79.3 \mathrm{~mm}^{3}$

## Homework Review

- Document Camera


## FORMULAS REVIEW

Circles:
Circumference: $\quad C=\pi d$ or $C=2 \pi r$
Area: $\quad A=\pi r^{2}$


## Area of Triangle:

$\bigcirc A=\frac{b h}{2}$



## Prisms

## Prisms have TWO bases that are connected by flat sides all around.



## FORMULAS REVIEW

Any Prism:
Volume $=($ Area of base $) \mathrm{x}$ height
o Rectangular Prism:
-Triangular Prism:

- Cylinder

$$
\begin{aligned}
& V=(l w) \cdot h \\
& V=\left(\frac{b h}{2}\right) \cdot \boldsymbol{h} \\
& \boldsymbol{V}=\left(\pi r^{2}\right) \cdot \boldsymbol{h}
\end{aligned}
$$

## Pyramids/Cones

Pyramids \& Cones have ONE base, and come to a point at the top.
3 pyramids $=1$ prism. 3 cones $=1$ cylinder.


## Cones \& Pyramids

Any Pyramid:
Volume $=\frac{\text { (Area of base) } \cdot \text { height }}{3}$

- Rectangular/Square Pyramid:
- Cone:

$$
\begin{aligned}
& V=\frac{l w h}{3} \\
& V=\frac{\pi r^{2} \cdot h}{3}
\end{aligned}
$$

## Volume of a sphere

The volume of a sphere is $2 / 3$ of the cylinder it "fits" in.

- $V($ sphere $)=\frac{2}{3}\left(\pi r^{2} \cdot \boldsymbol{h}\right)$
- $V($ sphere $)=\frac{2}{3}\left(\pi r^{2} \cdot 2 r\right)$
- $V($ sphere $)=\frac{4}{3} \pi r^{3}$


## Spheres

## Spheres:

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



## All 3-dimensiondाiormulas have three variables!!!

- Rectangular Prism:

$$
V=l \cdot w \cdot h
$$

- Cylinder:

$$
V=\pi r^{2} h \quad V=\pi \cdot r \cdot r \cdot h
$$

- Cone:

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

- Sphere: $\quad V=\frac{4}{3} \pi r^{3} \quad \boldsymbol{V}=\frac{4}{3} \cdot \boldsymbol{\pi} \cdot \boldsymbol{r} \cdot \boldsymbol{r} \cdot \boldsymbol{r}$

All 2-dimensional formulas have three variables!!

- Rectangle:

$$
A=l \cdot w
$$

- Triangle:

$$
A=\frac{1}{2} \cdot b \cdot h
$$

- Circle:
$A=\pi r^{2}$
$\boldsymbol{A}=\boldsymbol{\pi} \cdot \boldsymbol{r} \cdot \boldsymbol{r}$
- Radius = z
- Thickness = a
- Find the Volume


$$
\begin{gathered}
\pi^{*} z^{2}{ }^{*} \mathrm{a}=\text { Volume } \\
\mathrm{Pi}^{*} \mathrm{z}^{*} \mathrm{z}^{*} \mathrm{a}
\end{gathered}
$$

## CLASSWORK/HOMEWORK:

- Volume Scavenger Hunt WS
- TYPO: THE DIAMETER ON H SHOULD BE 24 CM, NOT 28
- The answer to each problem is SOMEWHERE ELSE on the sheet
- You can start at any problem you want - the sequence should take you to all 14 problems and then back to the one you started at.
- If you start at A, most of the harder ones will be near the end.
- You may work alone, or with a partner of your choice. Be responsible - pick someone you will work well with and who won't distract you. If I see you and your partner off task, you will be separated.
- You must show ALL work. If you need more space, attach a separate sheet of paper.
- WHATEVER YOU DON'T FINISH IS HOMEWORK!!!

