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## Warmup 3/ (The number of cubes that are visible on a Rubik's cube)

Without looking them up, try to write each formula:

1) Circumference of circle
2) Area of circle
3) Rectangular Prism
4) Triangular Prism
5) Cylinder
6) Cone
7) Rectangular Pyramid
8) Sphere

## Today: Whiteboard practice

## Expectations

- Show work on the whiteboard
- Round to the nearest tenth (unless it says otherwise)
- See if you can do them without looking up the formulas! (You may look if you need to)
- If you finish a problem early, you may not read/draw/etc. Be a resource for others at your table!

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)

## 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 $=\frac{\pi \cdot 2^{2} \cdot 6}{3}$
Cone $\approx 25.1$

Volume $\approx 216-25.1$
Volume $\approx 190.9 \mathrm{~cm}^{3}$

## 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.


$$
\begin{gathered}
3^{2}+h^{2}=9^{2} \\
h=\sqrt{72} \text { or } \approx 8.49 \\
V=\frac{1}{3} \pi \cdot 3^{2} \cdot \sqrt{72} \pi \\
V=\frac{1}{3} \pi \cdot 3^{2} \cdot \sqrt{72} \\
V \approx 80.0 \text { units }^{3}
\end{gathered}
$$

Find the volume:

$$
V=\frac{1}{2}\left(\pi r^{2} \cdot h\right)
$$



$$
V=\frac{1}{2}\left(\pi \cdot 5^{2} \cdot 12\right)
$$

$$
V=\frac{1}{2}(300 \pi)
$$

$$
V=150 \pi i n^{3}
$$

$$
V \approx 471.2 \mathrm{in}^{3}
$$

A truck that carries gasoline is shown.


How much gasoline can the cylindrical tank hold?
(A) $212 \pi \mathrm{ft}^{3}$
(B) $424 \pi \mathrm{ft}^{3}$
(c) $848 \mathrm{n} \mathrm{ft}^{3}$

$$
V=\pi \cdot 4^{2} \cdot 53
$$

(D) $3392 \mathrm{f} \mathrm{ft}^{3}$
$V=848 \pi$
(Those are all pi symbols!!!)

- Find the volume of the figure. Leave your answer as an exact answer (leave $\pi$ in it)



## Working backwards...

- Find the width of the prism.

$$
\begin{array}{cc}
V=l w h \\
V=288{f t^{3}}^{288}=12 \cdot w \cdot 6
\end{array}
$$



Multiply 12 \& 6 first, then divide OR
Divide each one separately

$$
\begin{gathered}
288=72 \cdot h \\
18=h
\end{gathered}
$$

## Working backwards...

- Find the height of the cylinder.



## Working backwards...

- Find the radius of the cone.

$$
V=96 \pi \mathrm{~cm}^{3}
$$



$$
\begin{aligned}
& V=\frac{\pi r^{2} \cdot h}{3} \\
& 96 \nsim=\frac{\not t \cdot r^{2} \cdot 18}{3} \\
& 96=\frac{r^{2} \cdot 18}{3} \\
& 96=6 \cdot r^{2} \\
& 16=r^{2} \\
& 4=r
\end{aligned}
$$

## Homework

- Volume Worksheet

