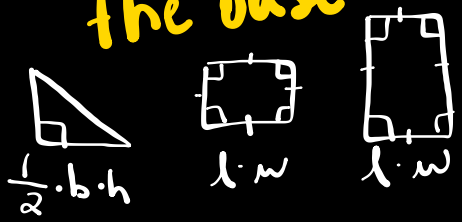
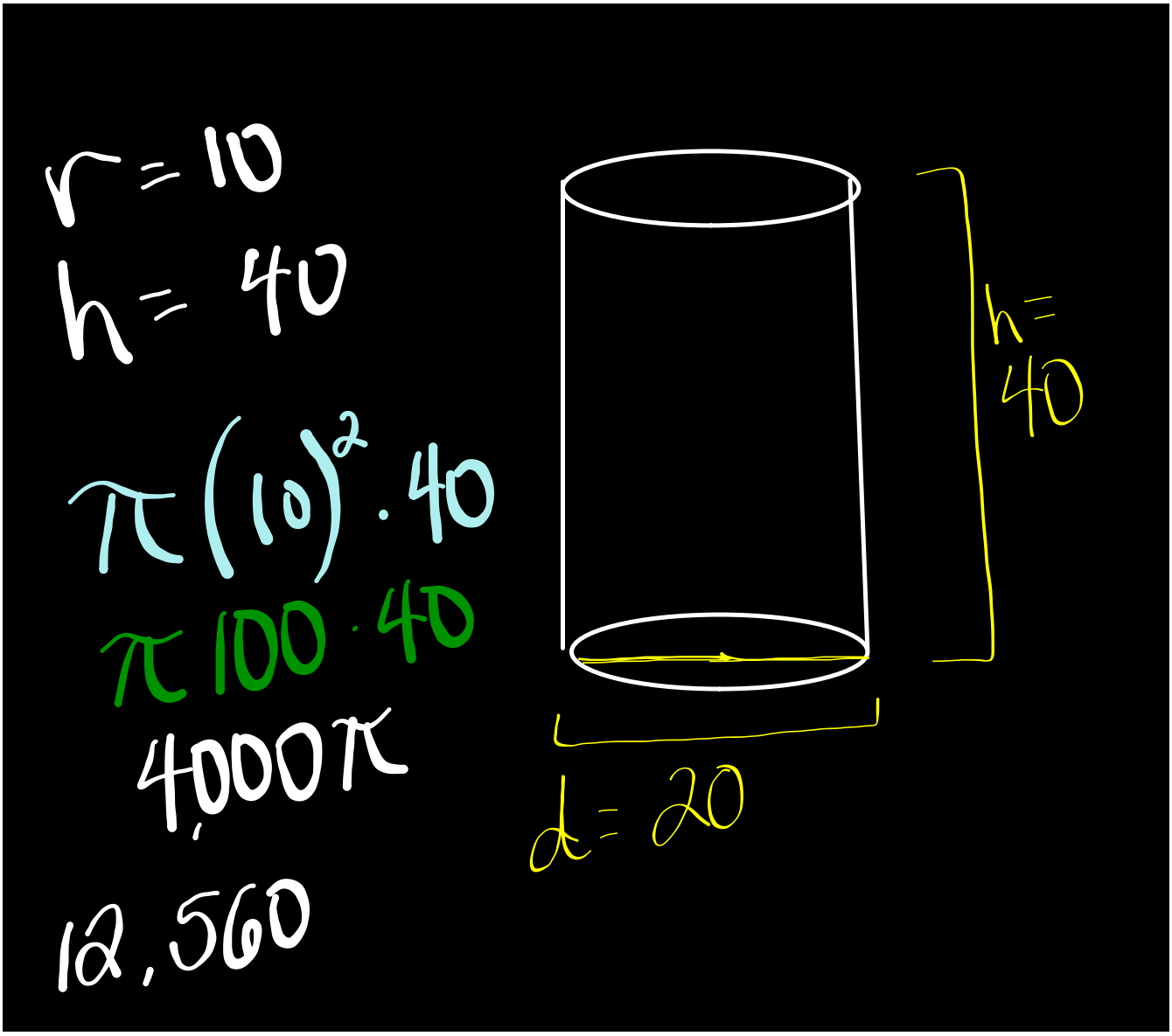
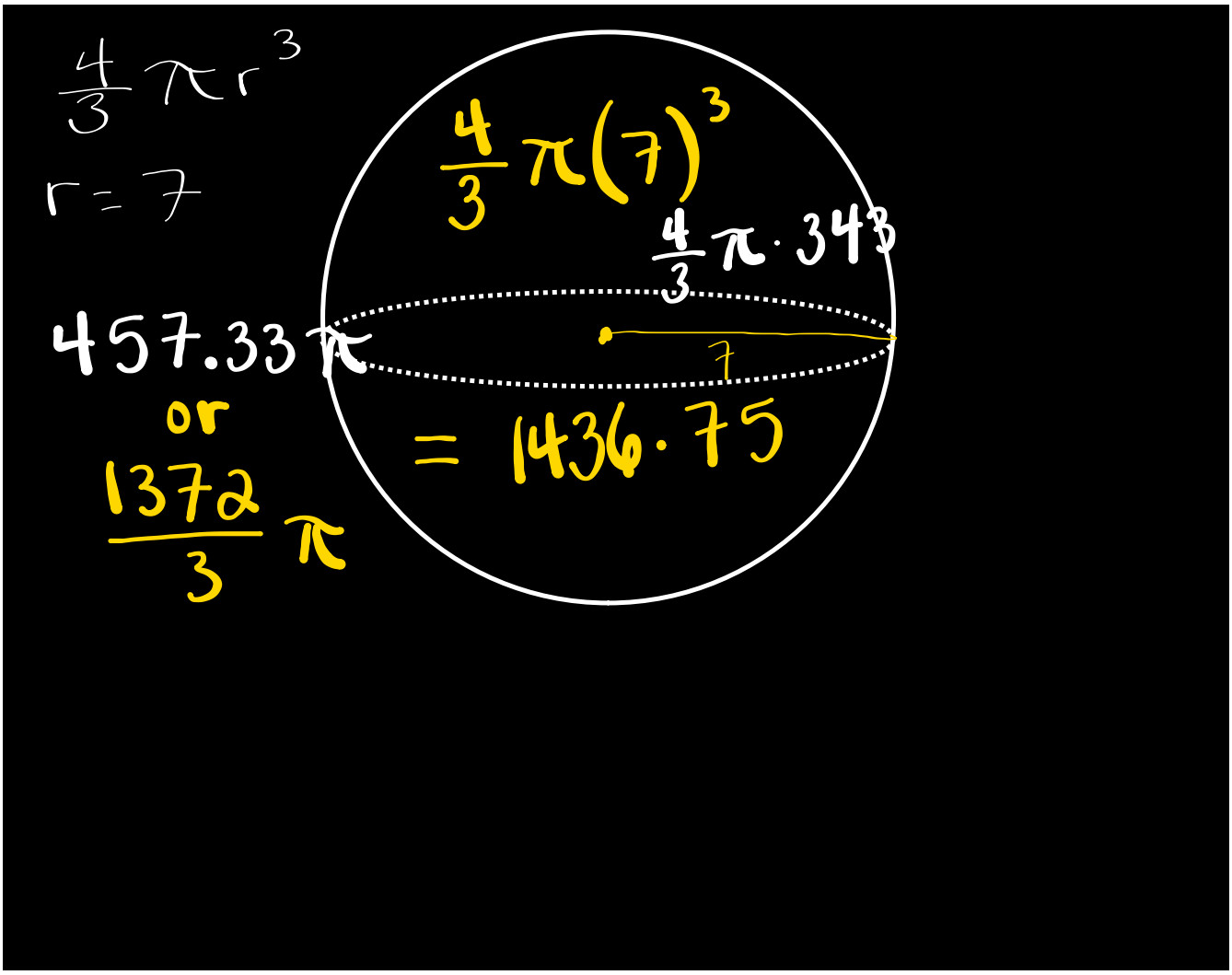
Volume

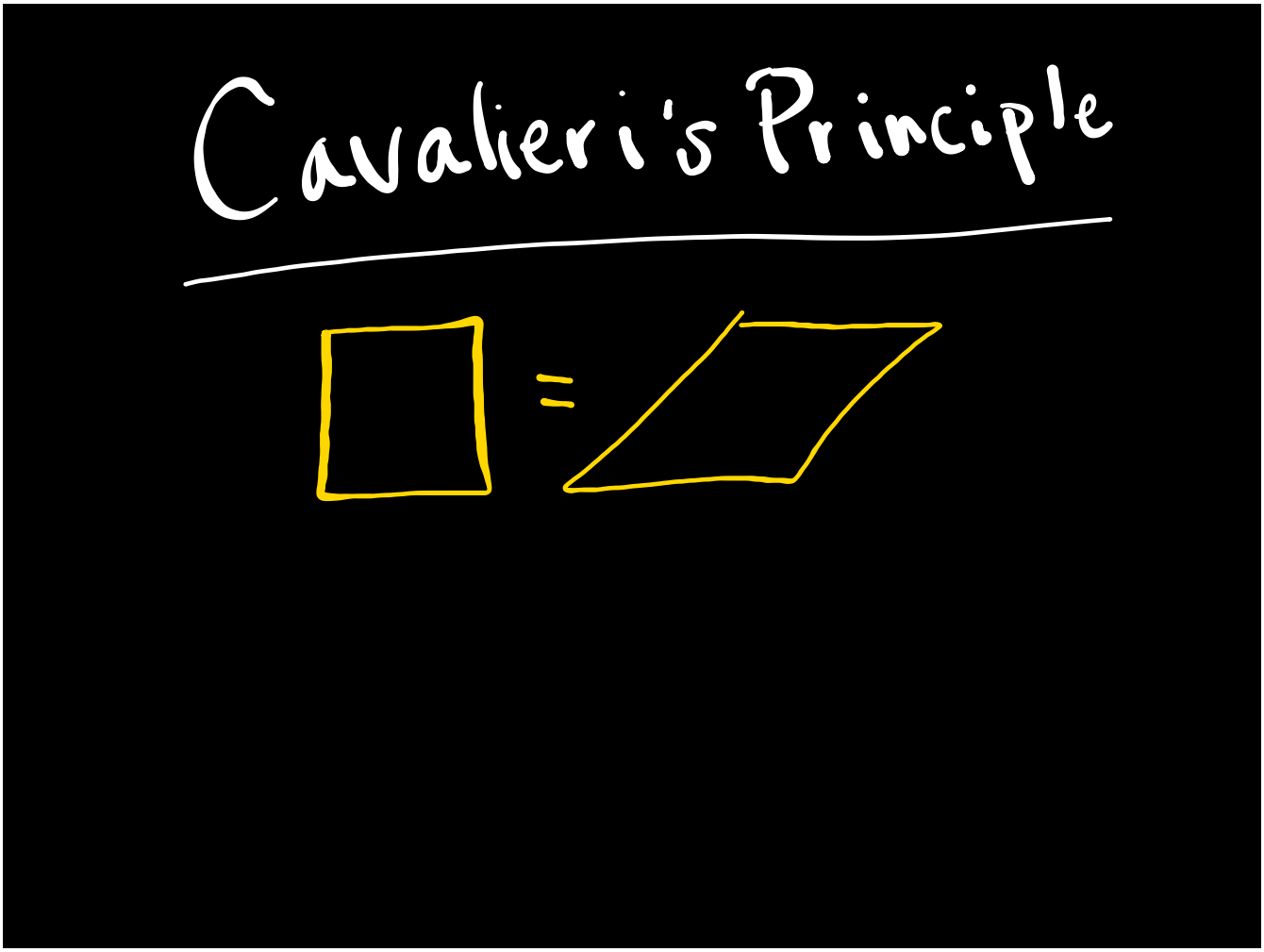
Sphere	Pyramid	Cylinder	Cone
$\frac{4}{3}\pi r^3$	$\frac{1}{3} \cdot B \cdot h$	$\pi r^2 \cdot h$	$\frac{1}{3}\pi r^2 \cdot h$

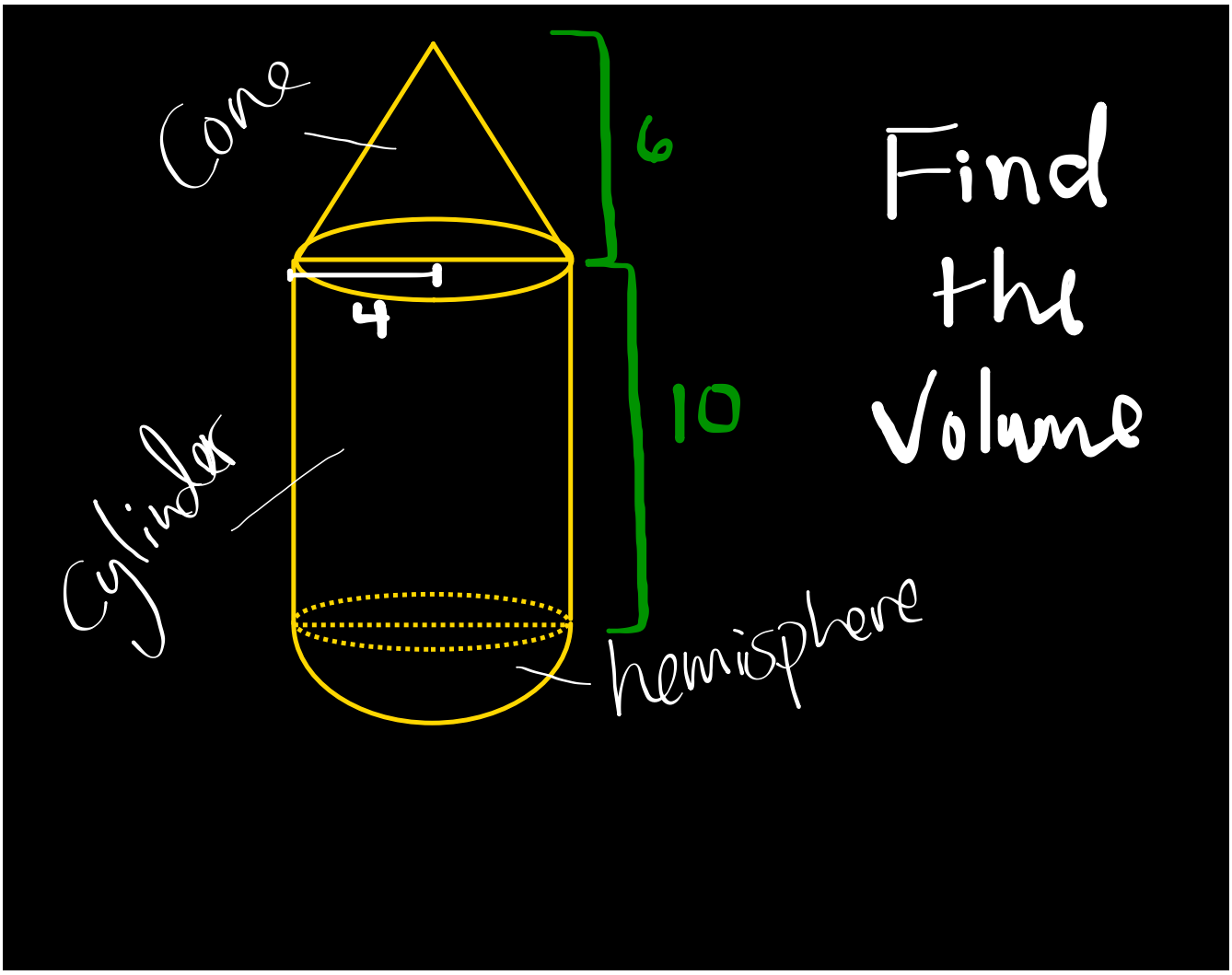
area of the base




r = 10
h = 40
π(10)² · 40
π 100 · 40
4,000π
12,560
h = 40
d = 20


$\frac{4}{3}\pi r^3$
$r = 7$
$\frac{4}{3}\pi(7)^3$
$\frac{4}{3}\pi \cdot 343$
457.33π
or
$\frac{1372}{3}\pi$
7
$= 1436.75$


Cavalieri's Principle


Cone
6
4
10
Cylinder
hemisphere
Find the Volume

$$\text{Cone} = \frac{1}{3}\pi r^2 \cdot h \qquad 4^2 \cdot 6$$

$$\text{Cyl} = \pi r^2 \cdot h \qquad 4^2 \cdot 10$$

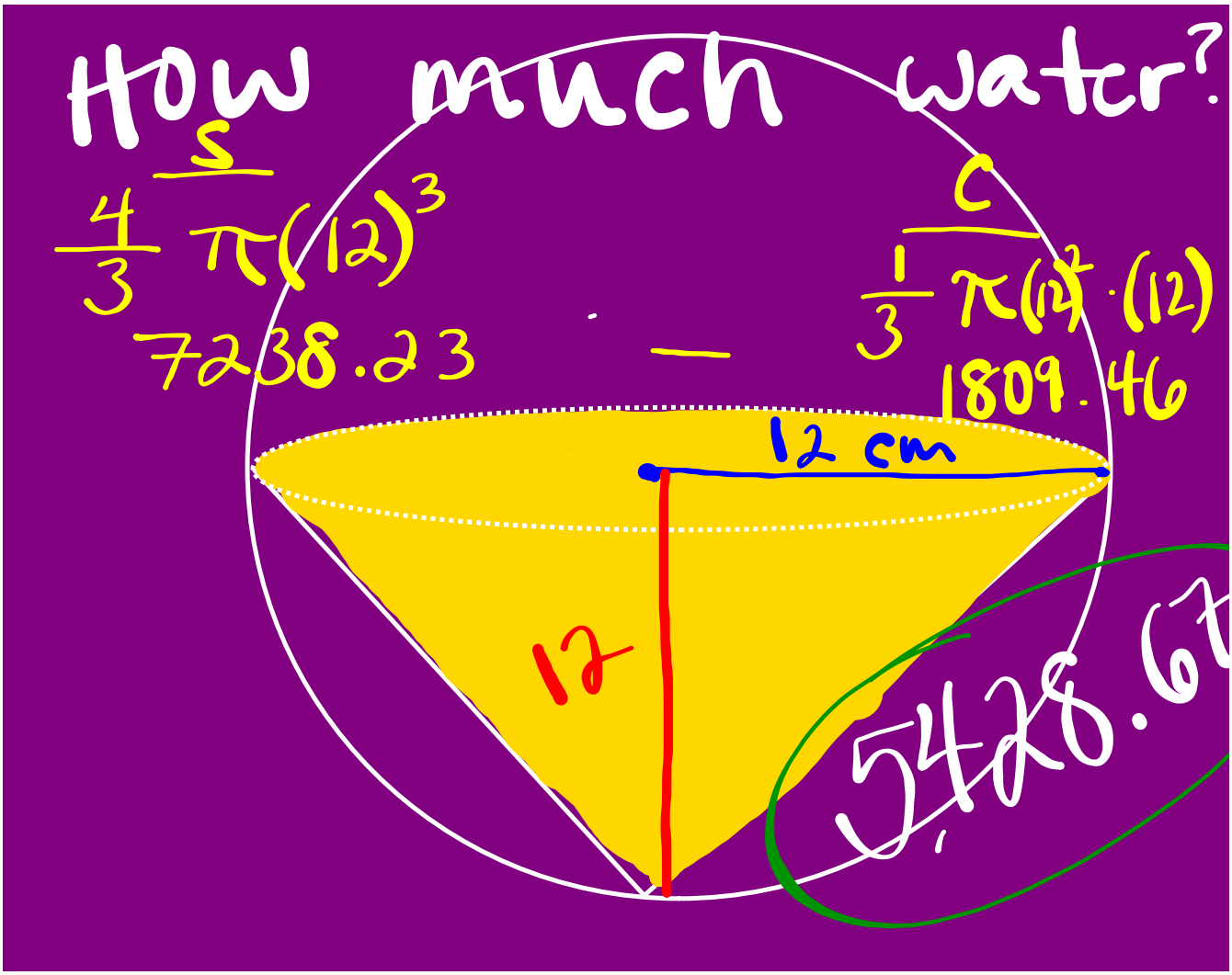
$$\text{Hemi Sphere} = \frac{\frac{4}{3}\pi r^3}{2} \qquad (4)^3$$

32π
100.53
$+$
160π
502.65
$+$
$\frac{128}{3}\pi$
134.04

≈ 737.22

$x \cdot x \cdot x = x^3$

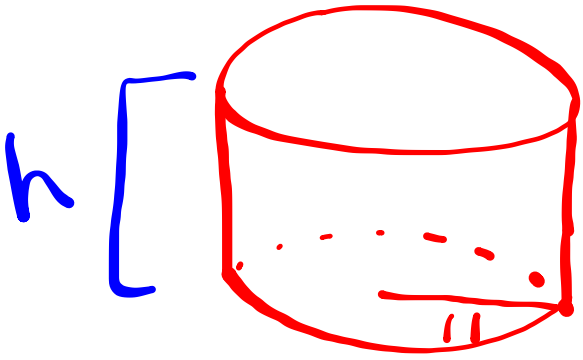
$x + x + x = 3x$


How much water?
S
$\frac{4}{3}\pi(12)^3$
7238.23
—
C
$\frac{1}{3}\pi(12)^2 \cdot (12)$
1809.46
12 cm
12
5428.77

5.

$r = 11$

$V = 1089\pi$



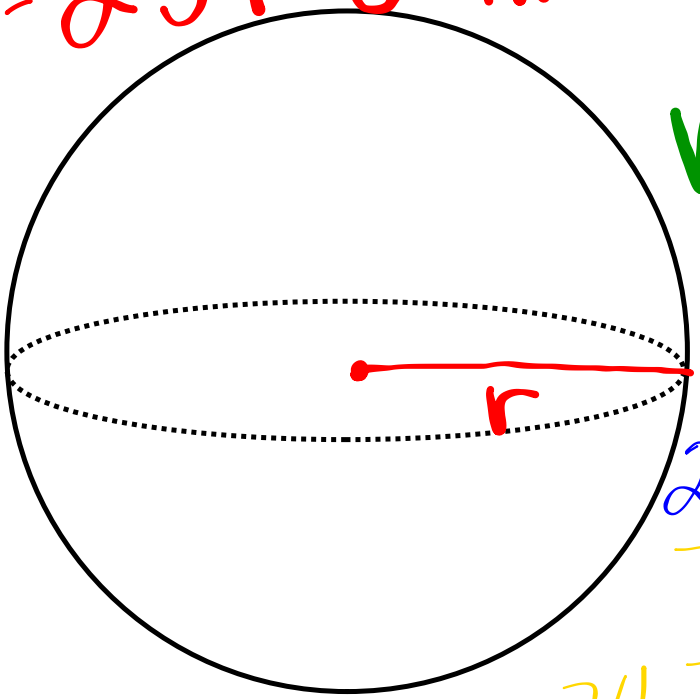
$V = \pi r^2 \cdot h$

$\frac{1089\pi}{121\pi} = \frac{\pi(11)^2 \cdot h}{121\pi}$

$\frac{1089}{121} = h$

$h = 9$

$V = 234.8 \text{ in}^3$



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

$\frac{234.8}{\pi} = \frac{\frac{4}{3}\pi r^3}{\pi}$

$74.73 = \frac{4}{3} r^3$

$\frac{3}{4} \cdot 74.73 = \frac{3}{4} \cdot \frac{4}{3} r^3$

$56.05 = r^3$

$r = 3.83$