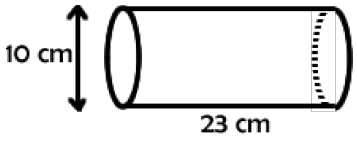
Volume – Cylinders & Cones

G.GMD.A.3 Hw Section 17.2 Name_____

Determine the volume of the following.

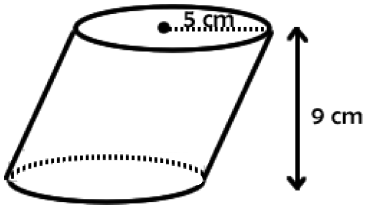
1.



$B = \pi r^2$
$= \pi(5)^2$
$B = 25\pi \text{ cm}^2$

$V_c = B \cdot h$
$= (25\pi)(23)$
$V_c = 575\pi \text{ cm}^3$

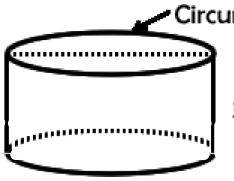
2.



$B = \pi r^2$
$= \pi(5)^2$
$B = 25\pi \text{ cm}^2$

$V_c = B \cdot h$
$= (25\pi)(9)$
$V_c = 225\pi \text{ cm}^3$

3.

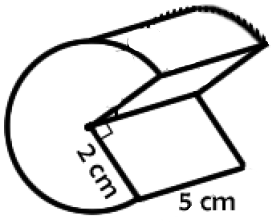


$C = 2\pi r$
$6\pi = 2\pi r$
$3 = r$

$B = \pi r^2$
$= \pi(3)^2$
$B = 9\pi \text{ cm}^2$

$V_c = B \cdot h$
$= (9\pi)(3)$
$V_c = 27\pi \text{ cm}^3$

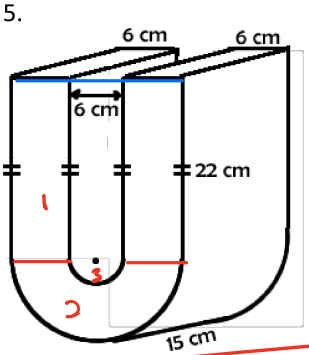
4.



$B = \frac{\theta}{360} \pi r^2$
$= \frac{270}{360} \pi(2)^2$
$= \frac{3}{4}(4\pi)$
$B = 3\pi \text{ cm}^2$

$V_c = B \cdot h$
$= (3\pi)(5)$
$V_c = 15\pi \text{ cm}^3$

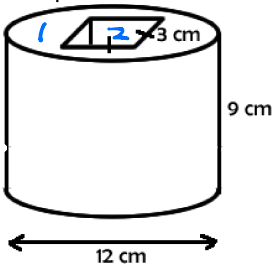
5.



$V_{FIG} = B \cdot h$
$= (264 + 36\pi)15$
$V_{FIG} = (3960 + 540\pi) \text{cm}^3$

$B = 2A_{\textcircled{1}} + A_2 - A_3$
$= 2(bh) + \frac{1}{2}\pi r^2 - \frac{1}{2}\pi r^2$
$= 2(22)(6) + \frac{1}{2}\pi(9)^2 - \frac{1}{2}\pi(3)^2$
$= 264 + \frac{81\pi}{2} - \frac{9}{2}\pi$
$= 264 + \frac{72\pi}{2}$
$B = (264 + 36\pi) \text{ cm}^2$

6. Square hole with sides of 3 cm



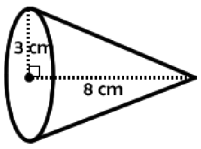
$B = A_1 - A_2$
$= \pi r^2 - bh$
$= \pi(6)^2 - 3(3)$
$B = (36\pi - 9) \text{ cm}^2$

$V_c = B \cdot h$
$= (36\pi - 9)(9)$
$V_c = (324\pi - 81) \text{ cm}^3$

Volume – Cylinders & Cones

G.GMD.A.3 Hw Section 17.2 Name_____

7.



$V_{cone} = \frac{1}{3}Bh$

$= \frac{1}{3}(9\pi)(8)$

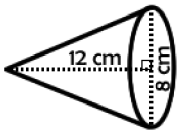
$V_{cone} = 24\pi \text{ cm}^3$

$B = \pi r^2$

$= \pi(3)^2$

$B = 9\pi \text{ cm}^2$

8.



$V_{cone} = \frac{1}{3}Bh$

$= \frac{1}{3}(16\pi)(12)$

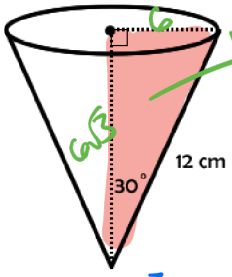
$V_{cone} = 64\pi \text{ cm}^3$

$B = \pi r^2$

$= \pi(4)^2$

$B = 16\pi \text{ cm}^2$

9.



$30°-60°-90°$

$x - x\sqrt{3} - 2x$

$V_{cone} = \frac{1}{3}Bh$

$= \frac{1}{3}(36\pi)(6\sqrt{3})$

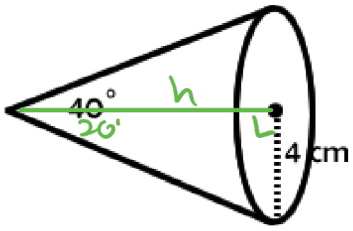
$V_{cone} = 72\sqrt{3}\pi \text{ cm}^3$

$B = \pi r^2$

$= \pi(6)^2$

$B = 36\pi \text{ cm}^2$

10.



$\tan 20° = \frac{4}{h}$

$h \tan 20° = 4$

$h = \frac{4}{\tan 20}$

$h \approx 10.99$

$V_{cone} = \frac{1}{3}Bh$

$= \frac{1}{3}(16\pi)(10.99)$

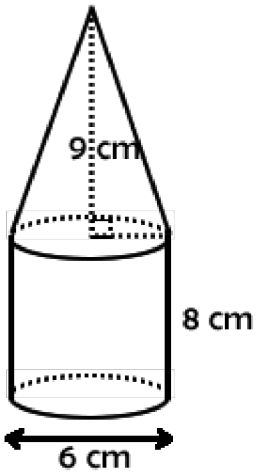
$V_{cone} \approx 58.61\pi \text{ cm}^3$

$B = \pi r^2$

$= \pi(4)^2$

$B = 16\pi \text{ cm}^2$

11.



$V_{FIG} = V_{cone} + V_{cyl}$

$= \frac{1}{3}Bh_1 + Bh_2$

$= \frac{1}{3}(\pi r^2)h + \pi r^2 h$

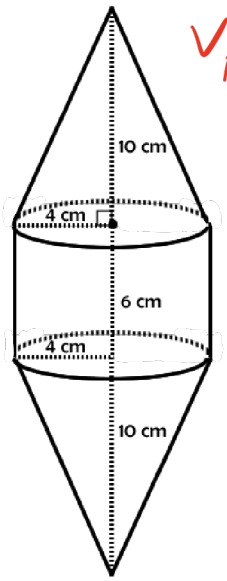
$= \frac{1}{3}\pi(3)^2(9) + \pi(3)^2(8)$

$= \frac{1}{3}\pi \cdot 9 \cdot 9 + \pi \cdot 9 \cdot 8$

$= 27\pi + 72\pi$

$V_{FIG} = 99\pi \text{ cm}^3$

12.



$V_{FIG} = 2V_{cone} + V_{cyl}$

$= 2Bh_1 + 2Bh_2$

$= 2(\frac{1}{3}\pi r^2)h + \pi r^2 \cdot h$

$= \frac{2}{3}\pi(4)^2(10) + \pi(4)^2(6)$

$= \frac{2}{3}(16\pi) \cdot 10 + 16\pi(6)$

$= \frac{320}{3}\pi + 96\pi \cdot \frac{3}{3}$

$= \frac{320\pi}{3} + \frac{288\pi}{3}$

$V_{FIG} = \frac{608\pi}{3} \text{ cm}^3$