

SPHERES ANSWERS

$$1. V = \frac{4}{3}\pi r^3$$

$$= \frac{4}{3}\pi(9)^3$$

$$= 972\pi \text{ cm}^3$$

$$2. SA = 4\pi r^2$$

$$= 4\pi(9)^2$$

$$= 324\pi \text{ cm}^2$$

$$3. V = \frac{4}{3}\pi(2\pi)^3$$

$$= \frac{4}{3}\pi \cdot 8\pi^3$$

$$= \frac{32}{3}\pi^4 \text{ in}^3$$

$$4. SA = 4\pi(2\pi)^2$$

$$= 4\pi \cdot 4\pi^2$$

$$= 16\pi^3 \text{ in}^2$$

$$5. 36\pi = 4\pi r^2$$

$$9 = r^2$$

$$3 = r$$

$$\text{radius: } 3 \text{ units}$$

$$6. 36\pi = \frac{4}{3}\pi r^3$$

$$27 = r^3$$

$$3 = r$$

$$\text{radius: } 3 \text{ units}$$

$$7. 8\pi = 4\pi r^2$$

$$2 = r^2$$

$$\sqrt{2} = r$$

$$\text{radius: } \sqrt{2} \text{ UNITS}$$

$$8. 4\pi(3) = \frac{4}{3}\pi r^3$$

$$3(3) = r^3$$

$$\sqrt[3]{27} = r^3$$

$$\sqrt[3]{3^3} = r^3$$

$$\sqrt[3]{3} = r$$

$$\text{radius: } \sqrt[3]{3} \text{ UNITS}$$

$$9. V_{\text{CAPSULE}} = V_{\text{SPHERE}} + V_{\text{CYL}}$$

$$V = \frac{4}{3}\pi r^3 + \pi r^2 h$$

$$= \frac{4}{3}\pi(10)^3 + \pi(10)^2(18)$$

$$= \frac{4000}{3}\pi + 1800\pi$$

$$= \frac{9400}{3}\pi \text{ in}^3$$

$$\text{OR } 3133\frac{1}{3}\pi \text{ in}^3$$

$$10. SA_{\text{CAPSULE}} = SA_{\text{SPHERE}} + LSA_{\text{CYL}}$$

$$SA = 4\pi r^2 + 2\pi r h$$

$$= 4\pi(10)^2 + 2\pi(10)(18)$$

$$= 400\pi + 360\pi$$

$$= 760\pi \text{ in}^2$$

$$11. V_{\text{HOUSE}} = V_{\text{RECT. PRISM}} + V_{\text{TRIANG. PRISM}}$$

$$= lwh + A_b h$$

$$= 15 \cdot 8 \cdot 20 + \left(\frac{1}{2} \cdot 15 \cdot 7\right)(20)$$

$$= 2400 + 1050$$

$$= 3450 \text{ m}^3$$

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$$① S_A = 2\pi r^2 + 2\pi r h$$

$$= 2\pi(4)^2 + 2\pi(4)(30)$$

$$= 1232\pi \text{ m}^2$$

$$V = A_b h$$

$$= \pi(4)^2(30)$$

$$= 5880\pi \text{ m}^3$$

$$② S_A = 2\pi\left(\frac{1}{4}\right)^2 + 2\pi\left(\frac{1}{4}\right)(24)$$

$$= 12\frac{1}{2}\pi \text{ m}^2$$

$$V = \pi\left(\frac{1}{4}\right)^2(24)$$

$$= \frac{3}{2}\pi \text{ m}^3$$

$$③ S_A = 2\pi(20)^2 + 2\pi(20)\left(\frac{1}{2}\right)$$

$$= 820\pi \text{ m}^2$$

$$V = \pi(20)^2\left(\frac{1}{2}\right)$$

$$= 200\pi \text{ m}^3$$

$$④ S_A = LSA + A_b$$

$$= \pi r s + \pi r^2$$

$$= \pi(8)(17) + \pi(8)^2$$

$$= 200\pi \text{ m}^2$$



$$V = \frac{1}{3} A_b h$$

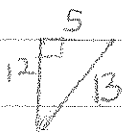
$$= \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi (8)^2 (15)$$

$$= 320\pi \text{ m}^3$$

$$⑤ S_A = \pi(5)(13) + \pi(5)^2$$

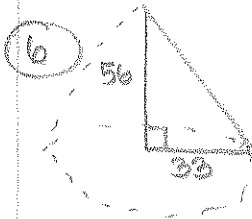
$$= 90\pi \text{ m}^2$$



$$V = \frac{1}{3} \pi (5)^2 (12)$$

$$= 100\pi \text{ m}^3$$

(2)



$$56^2 + 33^2 = c^2$$

$$4225 = c^2$$

$$\pm 65 = c$$

$$SA = \pi r s + \pi r^2$$

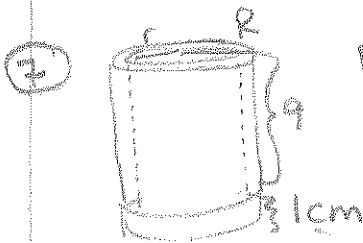
$$= \pi (33)(65) + \pi (33)^2$$

$$= 3234\pi \text{ m}^2$$

$$V = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi (33)^2 (56)$$

$$= 20,328\pi \text{ m}^3$$



$$R = 4.25 \text{ cm}$$

$$r = 3.75 \text{ cm}$$

$$TVOLUME = V_{\text{OUTER CYL}} - V_{\text{INNER CYL}} + V_{\text{BOTTOM}}$$

$$V_{\text{OUTER CYL}} = \pi R^2 h$$

$$= \pi (4.25)^2 (9)$$

$$= 36\pi$$

$$= 54\frac{1}{6}\pi \text{ cm}^3$$

$$V_{\text{INNER CYL}} = \pi r^2 h$$

$$= \pi (3.75)^2 (9)$$

$$= 18.0625\pi$$

$$V_{\text{BOTTOM}} = \pi R^2 h$$

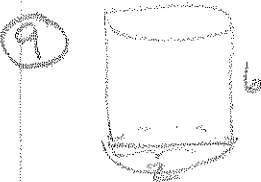
$$= \pi (4.25)^2 (1)$$



$$V = \frac{1}{3} \pi r^2 h$$

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

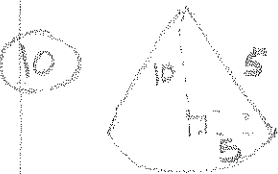
$$= 24\pi \text{ in}^3$$



$$SA = 2\pi r^2 + 2\pi r h$$

$$= 2\pi (1)^2 + 2\pi (1)(6)$$

$$= 14\pi \text{ ft}^2$$



$$SA = \pi r^2 + \pi r s$$

$$= \pi (5)^2 + \pi (5)\sqrt{125}$$

$$= (25\pi + 25\sqrt{5}\pi) \text{ cm}^2$$

$$10^2 + 5^2 = s^2$$

$$125 = s^2$$

$$\pm \sqrt{125} = s$$

