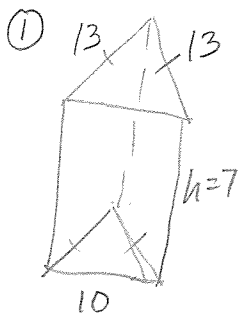


Area and Volume Word Problems KEY



$$LA = ph$$

$$= 36(7)$$

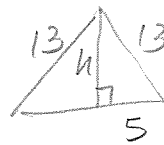
$$= \boxed{252}$$

$$TA = LA + 2B \rightarrow B = \frac{1}{2}bh$$

$$= 252 + 2(60)$$

$$= \frac{1}{2}(10)(12)$$

$$B = 60$$



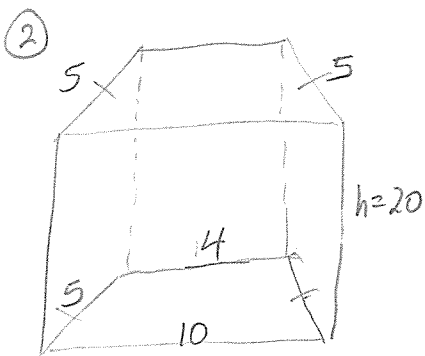
$$h^2 = 169 - 25$$

$$h = 12$$

$$TA = \boxed{372}$$

$$V = Bh$$

$$= 60(7) = \boxed{420 \text{ cubic}}$$



$$LA = ph$$

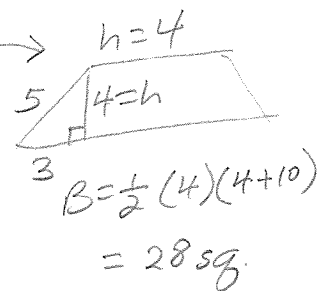
$$= 24(20)$$

$$= \boxed{480 \text{ sq}}$$

$$TA = LA + 2B$$

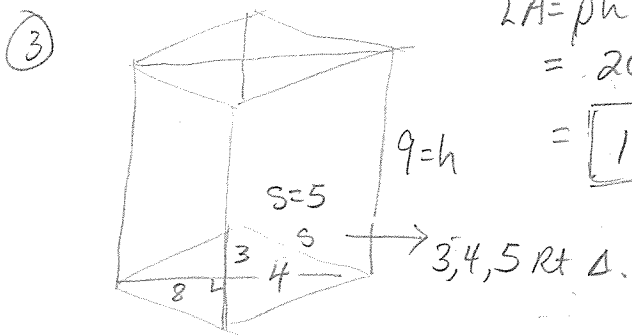
$$480 + 2(28)$$

$$= \boxed{536 \text{ sq}}$$



$$V = Bh = 28(20)$$

$$= \boxed{560 \text{ cubic}}$$



$$LA = ph$$

$$= 20(9)$$

$$= \boxed{180 \text{ sq.}}$$

$$TA = LA + 2B \rightarrow B = \frac{1}{2}dd$$

$$180 + 2(24)$$

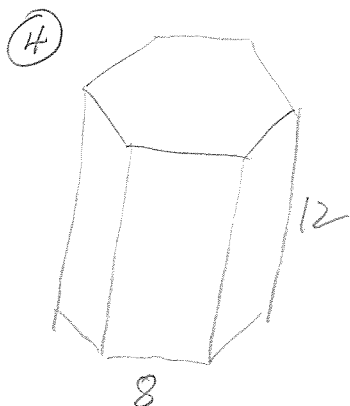
$$= \frac{1}{2}(8)(6)$$

$$= 24 \text{ sq}$$

$$= \boxed{228}$$

$$V = Bh$$

$$= 24(9) = \boxed{216 \text{ cubic}}$$



$$LA = ph$$

$$= 48(12)$$

$$= \boxed{576}$$

$$TA = LA + 2B \rightarrow B = \frac{1}{2}ap$$

$$= 576 + 2(96\sqrt{3})$$

$$= \frac{1}{2}4\sqrt{3}(48)$$

$$= 96\sqrt{3}$$

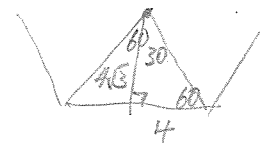
$$= \boxed{576 + 192\sqrt{3}}$$

$$V = Bh$$

$$= 96\sqrt{3}(12)$$

$$= \boxed{1152\sqrt{3} \text{ cubic}}$$

apothem = $4\sqrt{3}$



⑤ Find V_r

with rock: $h = 20.5$

$$\begin{aligned}
 V &= Bh \\
 &= 30(45)(20) \\
 &= 27000 \text{ cu. cm}
 \end{aligned}$$

$$\begin{aligned}
 V &= 30(45)(20.5) \\
 &= 27,675
 \end{aligned}$$

$$\begin{array}{r}
 27,675 \\
 - 27,000 \\
 \hline
 \text{Rock: } 675 \text{ cu. cm}
 \end{array}$$

⑥ $V = 30(5)(0.8)$
 $= 4.50 \text{ cu. m.}$

$$4.50 \times 175 = \boxed{\$ 787.50}$$

⑦ $V = 20(10)(5) = 1000$

$$V = 25(15)(4) = 1500$$

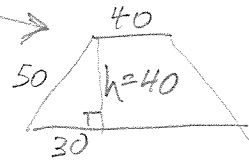
$$\frac{1000}{1.2} = \frac{1500}{x}$$

$$\begin{aligned}
 1000x &= 1800 \\
 x &= 1.8
 \end{aligned}$$

$$\boxed{\text{Weight} = 1.8 \text{ kg}}$$

⑧ $V = Bh$
 $= 2800(200)$
 $= 560,000 \text{ cm}^3$
 $= .56 \text{ cu. m.}$

$$\begin{aligned}
 B &= \frac{1}{2}h(b_1 + b_2) \\
 &= \frac{1}{2}(40)(40 + 100) \\
 &= 2800
 \end{aligned}$$



$$\hookrightarrow \text{weight of water} = \boxed{0.56 \text{ metric tons}}$$

$$\begin{aligned}
 1 \text{ cu. m} &= 100^3 \\
 &= 1,000,000 \\
 &\text{cu. cm}
 \end{aligned}$$

⑨ $TA_{\text{SOLID}} = TA_{\text{outside}} - 2(B_{\text{opening}}) + LA_{\text{inside}}$

$$= LA + 2B$$

$$= 14x(5x) + 2[4x(3x)] - 2(2x \cdot x) + 6x(5x)$$

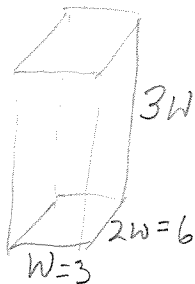
$$= 70x^2 + 24x^2 - 4x^2 + 30x^2 = \boxed{120x^2}$$

$$V_{\text{SOLID}} = V_{Lg} - V_{Sm}$$

$$= (4x)(3x)(5x) - x(2x)(5x)$$

$$= 60x^3 - 10x^3 = \boxed{50x^3}$$

10



$$V = Bh$$

$$162 = w(2w)(3w)$$

$$162 = 6w^3$$

$$27 = w^3$$

$$3 = w$$

$$w = 3$$

$$\text{length} = 6$$

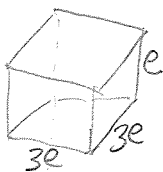
$$h = 9$$

$$TA = LA + 2B$$

$$= 18(9) + 2(18)$$

$$TA = 198 \text{ sq. cm}$$

11



$$TA = LA + 2B$$

$$750 = e(12e) + 2(9e^2)$$

$$750 = 12e^2 + 18e^2$$

$$750 = 30e^2$$

$$25 = e^2$$

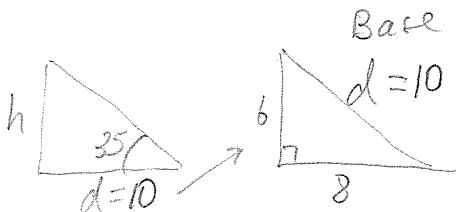
$$5 = e$$

$$V = Bh$$

$$= 15^2(5)$$

$$V = 1125 \text{ cu m.}$$

12



$$\tan 35 = \frac{h}{10}$$

$$h = 10 \tan 35$$

$$V = Bh$$

$$= 48(10 \tan 35)$$

$$\approx 336.1 \text{ cu. units}$$

13



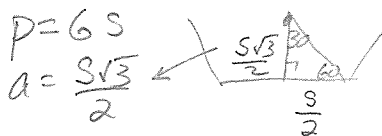
$$V = Bh$$

$$= \frac{x^2 \sqrt{3}}{4} (x) = \frac{x^3 \sqrt{3}}{4} = \frac{1}{4} x^3 \sqrt{3} \checkmark$$

14

$$V = Bh \rightarrow B = \frac{1}{2} ap$$

$$= \frac{39^2 \sqrt{3}}{2} h = \frac{1}{2} \frac{5\sqrt{3}}{2} \cdot 69$$



$$V = \frac{3}{2} 9^2 h \sqrt{3} = \frac{39^2 \sqrt{3}}{2}$$

$$(16) V = Bh$$

$$= \frac{e^2 \sqrt{3}}{4} (e)$$

$$54\sqrt{3} = \frac{e^3 \sqrt{3}}{4}$$

$$216 = e^3$$

$$6 = e$$

15



$$d = \sqrt{l^2 + w^2 + h^2}$$

$$4\sqrt{3} = \sqrt{e^2 + e^2 + e^2}$$

$$48 = 3e^2$$

$$16 = e^2$$

$$4 = e$$

$$V = Bh = 4^3 = 64$$