

Fig. 500 #9, 12, 15-20

9) Old: $SA = 4\pi r^2$ New: $SA = 4\pi (2r)^2$
 $V = \frac{4}{3}\pi r^3$ $= 4\pi 4r^2$
 $V = \frac{4}{3}\pi (2r)^3$
 $= \frac{4}{3}\pi \underline{8}r^3$

The SA is multiplied by 4
and the V is mult. by 8.

12) $36\pi = \frac{4}{3}\pi r^3$ $SA = 4\pi (3)^2$
 $(\frac{3}{4}) 36 = \frac{4}{3} r^3 (\frac{3}{4})$ $= 4\pi (9)$
 $27 = r^3$ $= 36\pi \text{ m}^2$
 $\sqrt[3]{27} = r$
 $3 = r$

15) $V_{\text{sphere}} = \frac{4}{3}\pi (2)^3$ $V_{\text{hemi}} = \frac{1}{2}(\frac{4}{3})\pi (4)^3$
 $= \frac{32\pi}{3}$ $= \frac{4}{6}\pi (64)$
 $= \frac{128\pi}{3}$

V of hemisphere is 4 times the V sphere.

16) $V_{\text{ice cream}} = \frac{4}{3}\pi (3)^3$ $V_{\text{cone}} = \frac{1}{3}(\pi)(2.5)^2(12)$
 $= 36\pi \text{ cm}^3$ $= 25\pi$

No, so get eating :)

$$17) SA = 4\pi(6380)^2$$

$$= 511506576$$

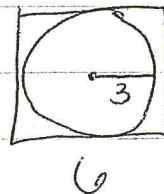
$$.70(511506576) \approx 358,000,000 \text{ km}^2$$

$$18) a) V_{\text{sphere}} = \frac{4}{3}\pi(3)^3$$

$$= 36\pi$$

$$= 36(3.14)$$

$$\approx 113 \text{ cm}^3$$



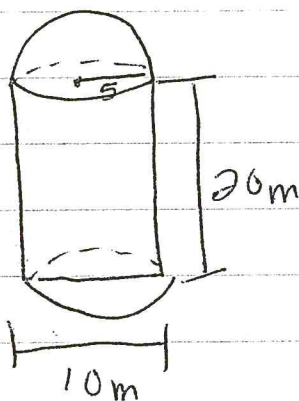
$$b) V_{\text{cube}} = 6^3$$

$$= 216$$

$$V_{\text{empty space}} = 216 - 113$$

$$= 103 \text{ cm}^3$$

19)



$$V_{\text{cyl}} = \pi(5)^2(20)$$

$$= 500\pi$$

$$V_{\text{hemi}} = \frac{1}{2} \cdot \frac{4}{3}\pi(5)^3$$

$$= \frac{250\pi}{3}$$

$$V_{\text{silo}} = 500\pi + \frac{250\pi}{3}$$

$$= \frac{1750\pi}{3} \text{ m}^3$$

$$20) SA_{\text{hemi}} = \frac{1}{2} \cdot 4\pi(5)^2$$

$$= 50\pi$$

$$SA_{\text{cyl}} = 2\pi(5)(20)$$

$$= 200\pi$$

$$\frac{2}{50\pi} = \frac{x \text{ cans}}{200\pi}$$

$$\frac{1}{25\pi} = \frac{x}{200\pi}$$

$$200\pi = 25\pi x$$

$$8 = x$$

50X