November 03, 2009

1:72

9.5 x 72 = 684"

$$D = \frac{m}{V} = \frac{14.5\,oz}{9\,in^3} \approx \frac{1.61\,oz}{1\,in^3} =$$

$$1.61\ oz/in^3$$

ICE

$16^3 = 4096\ cm^3$

$\frac{0.922\ g}{1\ cm^3} = \frac{m}{4096\ cm^3}$

$m = 3777\ g$

STEEL

$\frac{7.8\ g}{1\ cm^3} = \frac{m}{512\ cm^3}$

$m = 3994\ g$

We've been having problems with students showing all work and getting the correct answers. Additionally, it's been difficult for me to show my own work neatly on the smartboard then upload it to my web site. So to counter act this situation I scanned a few sample problems that I did using paper and pencil. This is what I am expecting students to show on their papers to receive full credit.

CHAP 4.3

4a) $\frac{130\ kg}{1\ m^3} \times \frac{4}{4} = \frac{520\ kg}{4\ m^3}$ ≈ 520 kg

4b) $\frac{130\ kg}{1\ m^3} = \frac{130{,}000\ g}{1{,}000{,}000\ cm^3} =$ 0.13 g

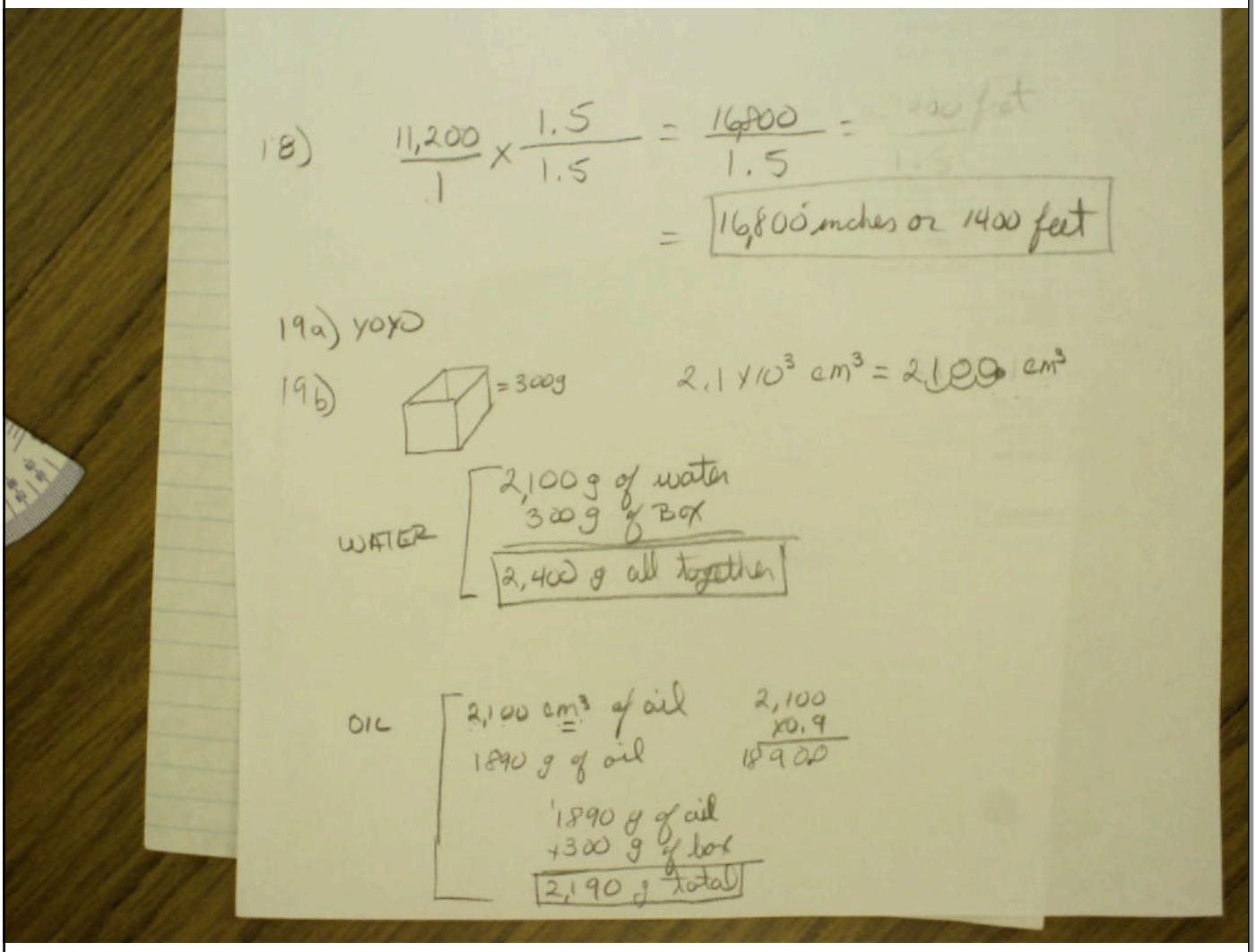
6) $D = \frac{m}{V}$ $m = 150\ g$ $V = 40\ cm^3$

$D = \frac{150\ g}{40\ cm^3} =$ $3\frac{3}{4}\ \frac{g}{cm^3}$

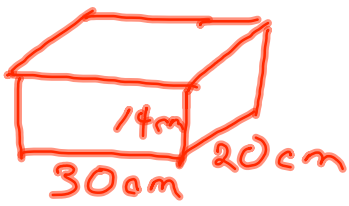
7) $D = \frac{m}{V}$ $m = 4\ lb$ $V = 29\ in^3$

$D = \frac{4\ lb}{29\ in^3} =$ 0.14 lb/in3

Chapter 4.3


18) 11,200/1 x 1.5/1.5 = 16800/1.5 =
= 16,800 inches or 1400 feet
19a) yoyo
19b) =300g
2.1 x 10^3 cm^3 = 2100 cm^3
WATER
2,100 g of water
300 g of box
2,400 g all together
OIL
2,100 cm^3 of oil
1890 g of oil
2,100
x0.9
1890
1890 g of oil
+300 g of box
2,190 g total

23)



Since the density of concrete has a density of 2000 kg/m^3. We must first convert the units of the black to Meters as well. Or our math just won't come out. So the dimensions of the block are 0.30 M X 0.14 M X 0.20 M

$V = 0.3 \times 0.14 \times 0.2 = 0.0084\ m^3$

$2000\ \frac{kg}{m^3} \times 0.0084\ m^3 = 16.8\ kg$ per block!

Not the final answer though. Read the question and use this information to get the final answer.

BE NEAT! :)

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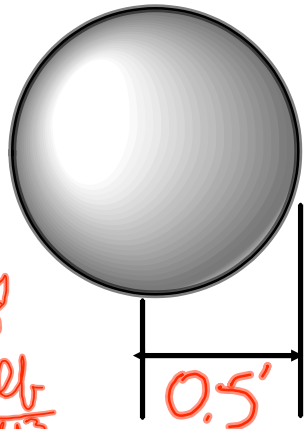

Density of steel is $487.7 \frac{lb}{ft^3}$

To find the volume of the ball or sphere use $V = \frac{4}{3} \pi r^3$

$$V = \frac{4}{3} \cdot \pi \cdot (0.5)^3$$

$$= \frac{4}{3} \cdot 3.14 \cdot 0.125$$

$$= 0.52\overline{3} \; ft^3$$

$$487.7 \frac{lb}{ft^3} \times 0.52\overline{3} \; ft^3 = 255.23 \; lb$$

So steel is too heavy. Now solve for the others and see if he can lift them.