

### +WS 1.9 - Review

Fill in the blanks with an appropriate unit: **mm, cm, m, km, g, kg, mL, L, kL**

1. The average textbook is 120 \_\_\_ long and weighs 2000 \_\_\_.
2. A tree can grow 0.7 \_\_\_ per year and can require 100 \_\_\_ of water per month.
3. My TV remote weighs 89 \_\_\_ and it has a working range of 1000 \_\_\_.

Convert the following:

- 4) 22.2 cm = \_\_\_\_\_ km                      5) 0.023 L = \_\_\_\_\_  $\mu$ L
- 6)  $6.1 \times 10^{-2}$  m = \_\_\_\_\_ Gm                      7)  $6.1 \times 10^7$   $\mu$ L = \_\_\_\_\_ cL

How many sig fig's?

- 8) 104 g        \_\_\_                      9) 104.01 g        \_\_\_  
10) 40 g        \_\_\_                      11) 40. g        \_\_\_  
12) 140.0 g    \_\_\_                      13) .0140 g        \_\_\_  
14)  $4.10 \times 10^3$  g \_\_\_                      15)  $2.003 \times 10^{-5}$  g \_\_\_

Round off to specified # of sig fig's:

- 16) Round 14.989 to...    4 sf: \_\_\_\_\_    3 sf: \_\_\_\_\_    2 sf \_\_\_\_\_    1 sf \_\_\_\_\_  
17) Round 31,011 to...    4 sf: \_\_\_\_\_    3 sf: \_\_\_\_\_    2 sf \_\_\_\_\_    1 sf \_\_\_\_\_

Calculate the following, using appropriate sig figs:

- 18) What is the volume of a shoebox whose dimensions are 125 cm by 25.5 cm by 30.0 cm?
- 19) A woman has a purse weighing 954.4 g. From it was stolen: a 121.23 g cell phone and a 11.29 g tube of lipstick! How much does the purse weigh now? \_\_\_\_\_

Density:

20) A graduated cylinder is placed on an electronic balance, and the scale reads 81.19 g. 15.5 mL of acetone are added, and the scale reads 95.33 g. What is the density of acetone?

Ans \_\_\_\_\_

21) Mystery object "A" has a density of 3.90 g/mL. If it weighs 450 g, what is its volume?

Ans \_\_\_\_\_

**For the following:** Indicate whether it is a **D**eterminate or **I**ndeterminate error (**Use "D" or "I"**):

- 22) \_\_\_\_\_ There was a rock stuck in the bottom of your graduated cylinder
- 23) \_\_\_\_\_ The temperature knob on the hot-plate is off by 10°C
- 24) \_\_\_\_\_ Someone dropped some German potato salad into your experiment
- 25) \_\_\_\_\_ Misunderstanding the instructions, you used hydrochloric acid instead of water.

Use Dimensional Analysis to convert the following: (circle your answer)

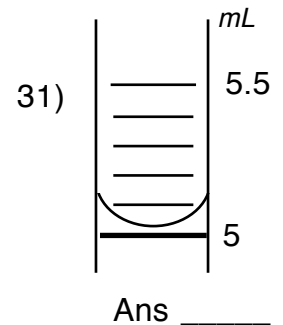
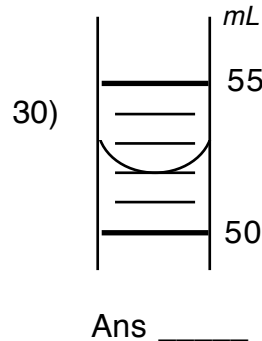
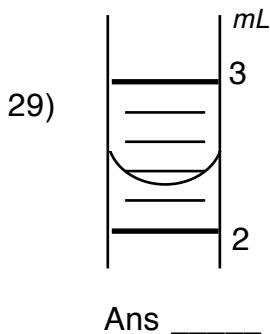
26) 39 m ---> mi

27) 4.11 qt ---> mL

28) 0.709 cm/sec ---> ft/day

1 ft = 12 in
1 mi = 5280 ft
1 lb = 16 oz
1 gal = 4 qt
1 in = 2.54 cm
1 mi = 1.61 km
1 lb = 454 g
1 qt = 0.946 L
1 m = 100 cm
1 km = 1000 m
1 kg = 1000 g
1 L = 1000 mL

Read the following graduated cylinders:



For the following: Indicate whether it is a Determinate or Indeterminate error (Use "D" or "I"):

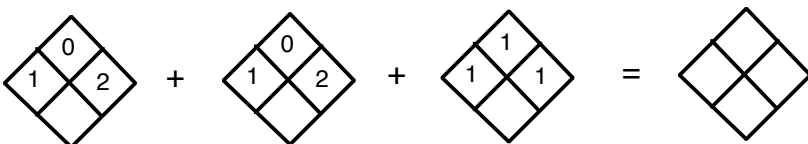
32) \_\_\_ Someone drank some of your experiment

33) \_\_\_ Your electronic balance is off by 0.4 grams

34) \_\_\_ You heated the chemicals to 90°C instead of 80°C because you miscopied the instructions

35) \_\_\_ A fly landed (and dissolved) in your highly acidic experiment

36) Combine these NFPA codes into one:



**Ans (IRO+ 2):** 6.1 x 10<sup>-11</sup>    0.000222    0.024    0.912    1    2    2.30    3    3    3    3    4    4  
 5    5.02    10    14.99    15    15.0    52.0    120    451    821.9    2010    3890    6.1 x 10<sup>3</sup>  
 23,000    30,000    31,000    31,000    31,010    95,600    97,800

**Units (IRO + 2):** mm    m    mL    mL    mL    mL    mL    mL    mL    mL    L    L    g    g    g    cm  
 cm<sup>3</sup>    g/mL    ft/yr    oz    mi    mi