DIMENSIONAL ANALYSIS (DA) PRACTICE #1

METRIC CONVERSIONS: Watch sig.figs. Use "K H D U D C M" to check your answer.

Example 1: 74 mg = _____ g (0.074 g)

Example 2: 0.2361 hL = _____ mL (23,610 mL)

1) 32.9 m = ___ mm
2) 4 cg = ___ g
3) 0.38 dL = ___ L
4) 0.925 mg = ___ kg
5) 6.8 L = ___ mL
6) 2.0 km = ___ m
7) 115 mL = ___ daL
8) 0.9 s = ___ μs
9) 30 mol = ___ mmol
10) 0.466 hL = ___ L

DA MATH PROBLEMS: Show all calculations and unit cancellations. Watch sig.figs. Remember that exact numbers like "60 sec = 1 min" are an infinite number of sig.figs and do not limit the sig.figs in the final answer.

11) How many milliseconds (ms) are in 35.61 yrs.?
12) Change 56.19 km/hr to m/s.
13) How many minutes are in one year? *Use 365.25 days = 1 year*
14) A car can travel 30.0 mi on one gallon of gas. How many km/L is this?
1.61 km = 1 mi. 1 L = 1.06 quarts 1 gal = 4 quarts
15) An airplane was flown at a speed of 12,193 mph (mi/hr). What was this speed in m/s? *1.61 km = 1 mi.*
16) Gold has sold for as much as $500.00 per oz. How many mg of gold could 1 cent buy? *1 oz. = 28.4 g*
17) Calculate the height of a 5 foot 10 inch (exactly 5'10") person in m, mm, and cm. *12 in. = 1 ft. 1 in = 2.54 cm*
18) Calculate the cost of gasoline for road trip of exactly 450 miles if your car averages 20.0 miles/gal of gas, and the gas costs $2.75 per gallon.
19) Dimensional analysis even works with nonsense units. In this case, it is the procedure you are practicing.
If 28 konks = 1 foop, 12 foops = 1 zark, 1 zark =20 neeks, and 1 neek = 50 blips…
How many blips are in one konk?
20) (See #19 for the conversion factrors.) How many foops are in 3 neeks?