

WKS – Chem Honors
Dimensional Analysis WS 1

NAME _____
Period _____ **Date** _____

Use dimensional analysis (the “factor-label” method) to solve the following problems. **Show all steps** needed to convert from starting units to ending units. **Indicate all relationships needed** before setting up and solving the problem. Use any of the following relationships if needed:

Part 1: Sols, Arks, meks etc....

Conversion factors

1 sol = 5 nats	36 sols = 1 dran	12 sols = 1 mek	1 sol = 3 arks	10 arks = 1.20 freds
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- 1) 15 sols = ? nats
- 2) 0.50 drans = ? sols
- 3) 7.84 arks = ? freds
- 4) 24 meks = ? drans
- 5) 6.5 freds = ? sols
- 6) 18 arks = ? drans
- 7) 60.0 freds = ? meks (

Part 2: Real Units

Use the following conversion factors, as needed. Do not use any other conversion factors unless provided in the problem.

1 mile = 1760 yds	16 oz = 1 lb	1 L = 1.057 qts	1 day = 24 hours
1 yd = 3 ft	2000 lbs = 1 ton	4 qts = 1 gal	1 hour = 60 mins
1 in = 2.54 cm	1 oz = 28.35 g	32 liquid oz = 1 qt	1 min = 60 secs
1 mile = 1.6093 km	1 kg = 2.205 lbs	1 qt = 2 pts	
1 m = 6.214×10 ⁻⁴ mile			

- 8) A runner competed in a 5.00-mile run. How many yards did she run?

- 9) In the Tour de France, cyclists ride 3,653.6 km in 21 days. How many miles do they go? [Hint: watch for unimportant information!]

- 10) Some steakhouses offer a 72-oz steak for free if you can eat it. How many pounds of meat would you have to swallow for a free dinner?

- 11) After eating your steak, perhaps you'd finish it off with a pound (1.00 lb) cake for dessert. What would the name of this cake be in grams?

- 12) If you go to school for 180 days each school year and you are in school 7.00 hours each day, how many minutes are spent in school in one school year?

- 13) A running back gained 225 yds in one game. How many meters did he go?

- 14) Soda is (used to be?) sold in 20-liquid oz bottles (1 bottle = 20.0 liquid oz). How many liters (L) would six of these bottles contain?

Answers: 1) 75 nats; 2) 18 sols; 3) 0.941 frds; 4) 8.0 drans; 5) 18 sols; 6) 0.17 drans; 7) 13.9 meks; 8) 8.80×10^3 yds; 9) 2270.3 mi; 10) 4.5 lbs; 11) 454 g; 12) 75,600 min; 13) 206 m; 14) 3.55 L