

Name:

Period:

Dimensional Analysis (Unit Conversion) Worksheet

Common Conversion Factors:

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ mi} = 5280 \text{ ft}$$

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ gal} = 4 \text{ qt}$$

$$1 \text{ in} = 2.54 \text{ cm}$$

$$1 \text{ mi} = 1.61 \text{ km}$$

$$1 \text{ lb} = 454 \text{ g}$$

$$1 \text{ L} = 1.057 \text{ qt}$$

$$1 \text{ mL} = 1 \text{ cm}^3$$

Directions: Use the *train track method* to solve each of the following. You may use *only* the conversion factors listed above, and your knowledge of the metric system. Make sure to express your answer in the correct number of *significant digits*. NO WORK = NO CREDIT!

1) 29.5 inches \rightarrow feet

2) 245.3 feet \rightarrow miles

~~3) 0.11 L \rightarrow cm³~~

3. 0.0459 meters \rightarrow inches

4. 18,268.3 inches \rightarrow meters

5. 80 km \rightarrow inches

~~7) 2.5×10^4 gallons \rightarrow mL~~

~~8) 34.8 mi/hr \rightarrow km/min~~

~~9) 0.00590 lb/qt \rightarrow g/gal~~

~~10) 5.178×10^{-3} lb/gal \rightarrow g/mL~~

Dimensional Analysis Worksheet 2

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:

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 ft = 12 in	1 oz = 28.35 g	32 oz = 1 qt	1 min = 60 secs
1 mile = 1.6093 km	1 kg = 2.205 lbs	1 qt = 2 pts	

- 1 A runner competed in a 5-mile run. How many yards did she run?
2. In the Tour de France, cyclists ride 3,653.6 km in 20 days. How many miles do they go? [Hint: watch for unimportant information!]
3. After a nice meal, 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?
4. In the US milk is sold by the gallon, while in Denmark it is sold by the liter. How many liters of milk would you need to equal one gallon?
5. If you go to school for 180 days each school year and each school day is 7 hours long, how many hours are spent in school in one school year?