

Dimensional Analysis practice

- 1) How many meters are in 3.5 miles?
- 2) How many inches are in 75mm?
- 3) How many inches are in 45 km?
- 4) Convert 242.0 lb to centigrams.
- 5) A man weighs 162 lb. What is his mass in milligrams?
- 6) How many seconds are in 1.0 solar years (365.24 days)?
- 7) Convert 239cm to km.
- 8) 10.0 miles = _____ km
- 9) 75 km = _____ miles
- 10) 3.0 kg = _____ lbs
- 11) 5.0 liters = _____ quart
- 12) 3.0 gallons = _____ liters
- 13) $35 \text{ cm}^3 = \text{_____ ml}$
- 14) When the Pharmacopoeia of London was compiled in 1618, the troy system of measure was used to prepare medicine. Among the units used were: 20 grains = 1 scruple; 3 scruples = 1 drachm; 8 drachms = 1 ounce; 12 ounces = 1 pound. Thus,
 - a. 12.05 pounds = _____ drachms
 - b. 25.0 drachms = _____ pounds = _____ ounces
- 15) A day on Mars is 8.864×10^4 seconds long and a year is 5.935×10^7 seconds long.
 - a. How many earth days are there in 1.0 Mars day?
 - b. How many earth days are there in 1.0 Mars year?
- 16) The sun is 92,900,000 miles from the Earth, how far is that in kilometers?
- 17) According to a sign, the distance from St. Louis to Chicago is 295 miles. Express this distance in kilometers.
- 18) A certain car has a fuel efficiency rating of 36.2 miles per gallon. Convert this to kilometers per liter.
- 19) A slow jogger runs a mile in 13.0 min. Calculate the speed in inches/second.

Answers:

- 1) 5631.5 m; 2) 2.95 in; 3) 1,771,650 in; 4) 10,977,120 cg; 5) 73,483,200 mg; 6) 31,556,736 sec; 7) .00239 km; 8) 16.09 km; 9) 46.613 miles; 10) 6.6 lbs; 11) 5.263 quarts; 12) 11.4 liters; 13) 35 ml; 14) a. 1156.8 drachms b. .260 lbs = 3.125 ounces; 15) a. 1.026 days b. 686.9 days; 16) 149,476,100 km; 17) 474.66 km; 18) 15.33 km/L; 19) 81.23 in/sec