Dimensional Analysis Practice Worksheet #1

Chemistry 1A

Instructions: On a separate sheet of paper perform the indicated conversions using dimensional analysis.

1. 3.54 g 🡪 kg
2. 1.20 L🡪 mL
3. 3500 µg 🡪 dg
4. 19.3 g 🡪 ng
5. 0.100 nm 🡪 m
6. 450 nm🡪 cm
7. 0.05 cg 🡪 µg
8. 134 mmol 🡪 mol
9. 2500 cm2🡪 m2
10. 1.34 m2 🡪 mm2
11. 1.00 km2 🡪 cm2
12. 1000 m 🡪 miles (2.54 cm = 1in; 5280 ft = 1mile)
13. 1 year 🡪 seconds
14. 550, 760 minutes 🡪 years
15. 60 m/s 🡪 mi/hr
16. 9.8 m/s 🡪 mi/hr
17. 1200 ft/s 🡪 mi/hr
18. 75 mi/hr 🡪 ft/second
19. 1000 mL 🡪 gal (29.6 mL = 1 oz: 128 oz = 1 gal)
20. 3500 cL 🡪 m3 ( 1 L = 1 dm3)
21. 1 mile3 🡪 cm3 (2.54 cm = 1in; 5280 ft= 1 mile)
22. 525600 min 🡪 years

Additional Problems

1. Traveling at 65 miles/hour, how many minutes will it take to drive 105 miles to Portland?
2. What is the weight, in pounds, of a bar of pure gold that is 12.0 in long, 4.00 in wide and 2.50 inches high. [Dgold = 19.3 g/cm3 ; 2.54 cm = 1 inch; 454 g = 1 pound]
3. The average distance between the Earth and Mars is 225 million km. How long (in minutes) will it take an electronic signal to travel this distance at the speed of light (3.00 x 108 m/s)?
4. If lightning strikes 8.0 miles from where you are standing, how long does it take for the light produced by the strike to reach you? How long does it take for the sound (thunder) to reach your ears? [Speed of light = 3.00 x 108 m/s; speed of sound = 343 m/s]
5. The total amount of fresh water on earth is estimated to be 3.73 x 108 km3 . What is this volume in cubic meters? In liters?
6. In 2016, 9 billion (9.0 x 109) Keurig coffee pods were sold. These pods are one-use only and cannot be recycled. If you were to stack up all 9 billion Keurig pods (each pod is 4.60 cm tall), would your coffee pod-stack reach the moon? (the moon is about 238900 miles away from Earth)