

Using Dimensional Analysis

Use your skills of dimensional analysis to answer the following problems. Make sure that your answers all have the correct number of significant figures. Show all work!

Potentially Useful Conversion Factors			
1 pm = 1×10^{-12} m	1.00 peck = 8.81 L	1 fathom = 6 ft	1.000 oz = 18.23 pennyweights
1.00 g = 2.20×10^{-3} lbs	1.00 link = 7.92 in	1 bushel = 4 pecks	1.000 league = 3038 fathoms
1 km = 1000 m	1 lb = 16 oz	1.00 m = 39.37 in	1.00 pennyweight = 1.20 scruples
1×10^{10} Angstroms = 1 m			

- The atomic radius of gold is 144 picometers (pm). What is the atomic radius of gold in units of:
 - Angstroms
 - Inches
 - Links
- The deepest point in the ocean is in the Mariana's Trench in the western Pacific Ocean, south of Japan. The deepest point is 5960 fathoms. What is the depth of the trench in units of:
 - Leagues
 - Feet
 - Kilometers
- There is a song that claims, "I love you a bushel and a peck." How much does this doll love this guy?
Hint: Love is measured in liters.
- A person with a mass of 165 lbs on earth would weigh how many scruples?
- Usain Bolt has run the 100 m in 9.58 sec. What was his average speed, in miles per hour, during the race?
Hint: You might need to research some of your own conversion factors on this one.

Answer Key				
1 a) 1.44 Angstroms	1 b) 5.67×10^{-9} in	1 c) 7.16×10^{-10} links	2 a) 1.96 leagues	2 b) 35800 ft
2 c) 10.9 km	3) 44.1 L	4) 57800 scruples	5) 23.4 miles/hr	