Math Review & Problem-Solving 3

DIRECTIONS

Work in small groups to solve the following problems. Ask questions of one another first, and if you cannot determine the answer as a group, consult with the instructor. Your group may be asked to present a problem to the full class. Show all units and express answers to the correct number of significant digits.

SIGNIFICANT DIGITS

1. 80 cm + 13.0 cm =	5. $0.7600\ mm^3 / 0.0152\ mm =$
2. $3.4 \times 10^{-9}\ m + 1.27 \times 10^{-7}\ m =$	6. 3 cm x 6 cm =
3. 750. g + 677.4 g =	7. $(8.6\ g + 7.8\ g) / 23.51\ cm^3 =$
4. 1100 cm + 8 cm =	8. $6.000 \times 10^{-3}\ m \times 0.0020\ m =$

SCIENTIFIC NOTATION

Express the following numbers in scientific notation with the proper number of significant digits:	Express the following numbers in long form with the proper number of significant digits:
9. 0.000 002 158	16. 3.56×10^{-3}
10. 6,024,000	17. 6.85×10^{5}
11. 500.0	18. 9.500×10^{2}
12. 0.00120	19. 3.000×10^{3}
13. 125.2×10^{-2}	20. 1.20×10^{-2}
14. 0.0000552×10^{3}	21. 5.00×10^{5}
15. 35.882×10^{-6}	

DIMENSIONAL ANALYSIS

22. Convert 32.5 oz to cg	25. Convert 9.86×10^8 dm^2 to km^2
23. Convert 3.55 mL to gallons	26. Convert 65 mi/hr to m/s
24. Convert 8.6 μg to dg	27. Convert 13.6 g/mL to lb/ft^3

MOLES & DENSITY

28. If 5.25 g of silver is added to a graduated cylinder containing 11.2 mL of water, to what level will the water level rise? (You can find the density of silver on the Sargent-Welch Periodic Table.)

29. Wood floats on water because it is less dense than water. If a cubic piece of metal has sides of 1.25 cm and a mass of 37.7 g, will the metal float on a pool of mercury?

30. Convert 15.22 g $Ba(NO_3)_2$ to formula units.

31. What mass is equal to 63.2 mmol (millimole) of benzoic acid, $C_7H_6O_2$?