

NAME \_\_\_\_\_

*Chemistry II Worksheet*  
*Significant Digits, Scientific Notation, and Density*

**INSTRUCTIONS:** It's time to take stock of where we are now. Work these problems on your own, because no one will be able to help you at test time (which isn't that far off). Express your answers with the proper units and the proper number of significant digits.

**PART ONE.** How many significant digits are there in each of the following numbers?

- |                |       |                           |       |
|----------------|-------|---------------------------|-------|
| a. 34.98 cm    | _____ | f. 0.000000485 m          | _____ |
| b. 6.02 g      | _____ | g. 9.3 kg                 | _____ |
| c. 42 students | _____ | h. 26.3 mL                | _____ |
| d. 50.08 mm    | _____ | i. 104.20 cm <sup>3</sup> | _____ |
| e. 75.0 in.    | _____ | j. 0.02 mg                | _____ |

**PART TWO.** Perform each of the following calculations. Express your answer with the proper number of significant digits.

- |                                   |       |
|-----------------------------------|-------|
| a. $15.9994 + 12.01115$           | _____ |
| b. $22.9898 + 35.453$             | _____ |
| c. $40.08 + 32.064$               | _____ |
| d. $95.00 - 75.00$                | _____ |
| e. $312.86 - 22.0$                | _____ |
| f. $7.51 \times 2.52 \times 0.62$ | _____ |
| g. $(48.12)(2.95)$                | _____ |
| h. $58.30 \div 16.48$             | _____ |
| i. $29.945 / 82.06$               | _____ |
| j. $\frac{307.15}{10.08}$         | _____ |

**PART THREE.** Convert each of the following numbers to or from scientific notation. Remember: only *one* non-zero digit in front of the decimal point!

- |                    |       |                           |       |
|--------------------|-------|---------------------------|-------|
| a. 5,030,000       | _____ | f. $3.80 \times 10^6$     | _____ |
| b. 0.00000047      | _____ | g. $2.50 \times 10^2$     | _____ |
| c. 15,000,000,000  | _____ | h. $5.40 \times 10^{-5}$  | _____ |
| d. 1,620,000       | _____ | i. $3.6 \times 10^{-3}$   | _____ |
| e. 0.0000000000282 | _____ | j. $5.245 \times 10^{10}$ | _____ |

[ more on back ]