

Chapter 2

Problem Set #1

1. Write each of the following numbers in **scientific (exponential) notation**. Assume trailing zeros are not significant.

a) 3560 _____ e) 547 _____

b) 0.0096 _____ f) 21000 _____

c) 0.000072 _____ g) 0.080 _____

d) 4000 _____ h) 0.00583 _____

2. Solve each of the following “**powers of ten**” problems:

a) $10^{-7} / 10^2$ _____ d) $10^6 \times 10^{-7} \times 10^{-8} \times 10^{11}$ _____

b) $10^4 / 10^{12}$ _____ e) $(10^9 \times 10^{-5} \times 10^8) / 10^6$ _____

c) $10^7 / 10^{-3}$ _____ f) $(10^{-23} \times 10^{17}) / (10^{13} \times 10^{-5})$ _____

3. Determine the number of **significant figures** (digits) in each of the following:

a) 572.1 _____ f) 100.0 _____ k) 5.0×10^4 _____

b) 0.0057 _____ g) 0.00100 _____ l) 5.000×10^4 _____

c) 0.01 _____ h) 857,000 _____ m) 7700.00 _____

d) 100 _____ i) 0.50005 _____ n) 7,000,000 _____

e) 1.00 _____ j) 5000 _____ o) 0.00000090 _____

4. **Round** each of the following numbers to three significant figures.

a) 4.926 _____ f) 4.7501 _____

b) 57.335 _____ g) 24.7499 _____

c) 8.0067 _____ h) 43.4500 _____

d) 1.025 _____ i) 43,750.0 _____

e) 0.004755 _____ j) 0.0132658 _____

5. Solve each of the following **addition** and **subtraction** problems. Express each answer to the correct number of significant figures.

	<u>Initial Answer</u>	<u>Corrected Answer</u>
a) $1.234 + 12.34 + 123.4 =$	_____	_____
b) $6.524 - 5.624 =$	_____	_____
c) $8.0 + 0.005 =$	_____	_____
d) $(7.2 \times 10^4) + (1.1 \times 10^5) =$	_____	_____
e) $8.7 - 1.5376 =$	_____	_____
f) $(6.94 \times 10^4) - (3.42 \times 10^2) =$	_____	_____
g) $1.006 - 0.92 - 0.036 =$	_____	_____
h) $187.25 - 21.2 =$	_____	_____

6. Solve the following **multiplication** and **division** problems. Express each answer to the correct number of significant figures. Use scientific notation if needed.

	<u>Initial Answer</u>	<u>Corrected Answer</u>
a) $2.51 \times 1.2 =$	_____	_____
b) $0.300 \times 0.100 =$	_____	_____
c) $4 \div 0.2 =$	_____	_____
d) $0.500 \div 2.5 =$	_____	_____
e) $(3.01 \times 10^{23}) \times (9.5 \times 10^1) =$	_____	_____
f) $(9.51 \times 10^{-9}) \div (4.0 \times 10^4) =$	_____	_____
g) $(5.44)^2 =$	_____	_____
h) $9.00 \times 0.04 =$	_____	_____
i) $7.0 \div 0.020 =$	_____	_____
j) $152.06 \times 0.24 =$	_____	_____
k) $[(4.11 \times 10^{11}) (3 \times 10^{12})] \div (6.3 \times 10^{19}) =$	_____	_____
l) $[(9.76 \times 10^5) (1.3 \times 10^{11})] \div (4.1 \times 10^3) =$	_____	_____