Pre-AP Chemistry 4323.H
Worksheet (100 pts)

Name:_____ **Period:** ____ **Date:** _____

Significant Figures and Scientific Notation

1. Determine how many significant figures there are in each of the following:

a) 195.01 mL	_____	j) 1200 L	_____	s) 10.002 s	_____
b) 0.00010 kg	_____	k) 0.0045010 km	_____	t) 0.0102 ms	_____
c) 998 870 ns	_____	l) 2.540×10^3 Pa	_____	u) 0.230 kg	_____
d) 1.00×10^4 g	_____	m) 0.451 m	_____	v) 10000 km	_____
e) 5005.0 m	_____	n) 520 mL	_____	w) 3.80×10^{-2} g	_____
f) 402 m	_____	o) 0.00420 g	_____	x) 5.1×10^4 kg	_____
g) 78323.01 g	_____	p) 34.20 lbs	_____	y) 3200 L	_____
h) 0.48 atm	_____	q) 1.10 torr	_____	z) 0.03 s	_____
i) 0.0300 ft	_____	r) 1400.0 m	_____	aa) 760 mmHg	_____

2. Perform each of the following multiplication/division calculations, following significant figure rules.

a) 17 m x 324 m =	_____	j) 1.7 mm x 4294 mm =	_____
b) 0.005 in x 8888 in =	_____	k) 0.050 m x 102 m =	_____
c) 0.424 in x 0.090 in =	_____	l) 324000 cm x 12.00 cm =	_____
d) 0.175 cm x 5.2 cm =	_____	m) 10.01 m x 17.300 m =	_____
e) 23.4 m ÷ 0.50 sec =	_____	n) 12 miles ÷ 3.20 hours =	_____
f) 0.960 g ÷ 1.51 mol =	_____	o) 1200 m ÷ 12.12 s =	_____
g) 234.5 m / 17.6 s =	_____	p) 18.39 g / 1.2 mL =	_____

h) 18.2 cm x 1.2 cm x 3.25 cm = _____

i) $(4.05 \times 10^5$ m) $(3.2 \times 10^4$ m) $(2 \times 10^3$ m) = _____

3. Perform each of the following addition/subtraction calculations, following significant figure rules.

a) 12.3 L + 3.51 L + 123.47 L =	_____	e) 42.306 m – 1.22 m =	_____
b) 200.761 g + 16.4 g + 0.005 g =	_____	f) 14.33 g – 3.468 g =	_____
c) 3.40 m + 0.022 m + 0.5 m =	_____	g) 234.1 cm – 62.04 cm =	_____
d) 102 cm + 3.14 cm + 5.9 cm =	_____	h) 139.050 m – 10.01 m =	_____

4. Perform the following calculations and round off the answer to the correct number of significant figures.

   a) 52.8 + (3.0025 / 253.4) = _____

   b) [12500 – (234.207 x 52.69)] = _____

   c) (7.223 + 9.14 + 3.7795) / 3.1 = _____

   d) (78.26 ± 89.50) / (678.2 + 9511) = _____ or _____

   e) (0.12 + 5.16) x (45.56 – 93.0) = _____

   f) (2.0944 + 0.0003233 + 12.22) / 7.001) = _____

   g) $[(1.42 \times 10^{2}) + (1.021 \times 10^{3})] / (3.1 \times 10^{-1})$ = _____

   h) $(9.762 \times 10^{-3}) / [(1.43 \times 10^{2}) + (4.51 \times 10^{1})]$ = _____

5. Convert each of the following to scientific notation and state number of significant figures.

   a) 0.00785 g _____ ____

   b) 15310.1 m _____ ____

   c) 0.031700 L _____ ____

   d) 36000000 s _____ ____

   e) 86000 mL _____ ____

   f) 1007 kg _____ ____

   g) 35006700 s _____ ____

   h) 8960 cm _____ ____

   i) 0.00023 kg _____ ____

   j) 0.0000000253 m _____ ____

6. Round off each of the numbers to the indicated number of significant figures, and write the answer in standard scientific notation.

   a) 5681×10^{3} kg to two significant figures _____

   b) 103.8×10^{2} kg to three significant figures _____

   d) 0.44491×10^{3} kg to four significant figures _____

   d) 6.8264 kg to three significant figures _____

7. Convert each of the following from scientific notation and state number of significant figures.

   a) 1.37×10^{-3} mol _____ ____

   b) 2.9070×10^{6} g _____ ____

   c) 7.500×10^{3} mL _____ ____

   d) 4.301×10^{-5} kg _____ ____

   e) 9.000×10^{2} m _____ ____