

Name _____

Period _____

Math for Chemistry Classes II

Part I: How many significant digits are there in the following measurements:

- | | | | |
|--------------|-------|--------------|-------|
| a) 32 cm | _____ | g) 301 mm | _____ |
| b) 600 m | _____ | h) 0.1687 km | _____ |
| c) 600. m | _____ | i) 7.052 cm | _____ |
| d) 2.411 mL | _____ | j) 0.03391 L | _____ |
| e) 62.517 kg | _____ | k) 0.006 m | _____ |
| f) 24.6 m | _____ | l) 2002 g | _____ |

Part II: Write the following numbers in scientific notation:

- | | | | |
|--------------|-------|-----------------|-------|
| a) 40,000 | _____ | f) 0.0 000 086 | _____ |
| b) 0.0 006 | _____ | g) 24, 251 | _____ |
| c) 0.000 002 | _____ | h) 63, 000 | _____ |
| d) 400 | _____ | i) 20.64 | _____ |
| e) 27, 000 | _____ | j) 0.00 000 009 | _____ |

Part III: Perform the following calculations without using a calculator. Answers must be expressed in scientific notation expressed to the correct number of significant digits.

- | | |
|---|-------|
| a) $10^3 \times 10^6$ | _____ |
| b) $10^{-4} \times 10^8$ | _____ |
| c) $10^8/10^3$ | _____ |
| d) $10^3/10^9$ | _____ |
| e) $10^{-6} \times 10^8$ | _____ |
| f) $(2.00 \times 10^3) \times (4.00 \times 10^4)$ | _____ |
| g) $(4.0 \times 10^3) \times (6.00 \times 10^7)$ | _____ |
| h) $(8.80 \times 10^{-3}) / (2.20 \times 10^6)$ | _____ |
| i) $(4.00 \times 10^6) / (8.00 \times 10^{12})$ | _____ |
| j) $(9.0 \times 10^6) \times (4.00 \times 10^6)$ | _____ |

Part V: Algebra One! Solve the following equations for x . Show all of your steps.

a) $3x = 21$

c) $7x + 9 = 3x + 25$

e) $42/x = 6$

b) $5 - 3x = 26$

d) $5x + 7 = 42$

f) $x^2 + 6 = 70$

Part VI: Solve the following math problems. You must show your work and use significant figures and units in your answers. Show the original algebraic formula that you use to solve the problem. Some basic geometric formulas will be used.

1) What is the area of a rectangle whose sides are 4.80 cm and 12.40 cm?

2) A cube has a side of 3.3 cm. What is the volume of the cube?

1) _____

3) A circle has a radius of 3.45 m. What is the circumference of the circle?

2) _____

4) A circle has a radius of 3.45 m. What is the area of the circle?

3) _____

5) What is the sum of 7.0 g and 8.56 g?

4) _____

6) What is the difference between 24.000 mL and 3.29 mL?

5) _____

6) _____