Name: _____

Chemistry: *Math Skills*

***Part A*: Express each of the following in standard form & state the number of significant figures.**

1. 5.2×10^{3}
2. 9.65×10^{-4}
3. 8.5×10^{-2}
4. 2.71×10^{4}
5. 3.6×10^{1}
6. 6.452×10^{2}
7. 8.77×10^{-1}
8. 6.4×10^{-3}

***Part B*: Express each of the following in scientific notation.**

1. 78,000
2. 0.00053
3. 250
4. 2,687
5. 16
6. 0.0043
7. 0.875
8. 0.012654

***Part C*: Use the exponent function on your calculator (EE or EXP) to compute the following. Use correct sig figs!**

1. $(6.0221 \times 10^{23})(8.65 \times 10^{4})$
2. $(6.0221 \times 10^{23})(9.63 \times 10^{-2})$
3. $\dfrac{5.6 \times 10^{-18}}{8.912 \times 10^{8}}$
4. $(-4.12 \times 10^{-4})(7.3453 \times 10^{12})$
5. $\dfrac{1.02 \times 10^{-14}}{4.2 \times 10^{-6}}$
6. $\dfrac{7.8521 \times 10^{26}}{6.02 \times 10^{23}}$
7. $(-3.2 \times 10^{-7}) - (-8.6 \times 10^{-9})$
8. $\dfrac{[(5.4 \times 10^{4}) + (2.2 \times 10^{7})]}{4.5 \times 10^{5}}$
9. $\dfrac{(6.02 \times 10^{23})(-1.42 \times 10^{-15})}{6.54 \times 10^{-6}}$
10. $\dfrac{(6.0221 \times 10^{23})(-5.11 \times 10^{-27})}{-8.23 \times 10^{5}}$
11. $\dfrac{(3.1 \times 10^{14})(4.4 \times 10^{-12})}{-6.6 \times 10^{-14}}$
12. $\dfrac{(8.2 \times 10^{-3})(-7.9 \times 10^{7})}{7.3 \times 10^{-16}}$
13. $\dfrac{(-1.6 \times 10^{5})(-2.4 \times 10^{15})}{8.945 \times 10^{3}}$
14. $(7.0 \times 10^{28})(-3.2 \times 10^{-20})(-6.4 \times 10^{35})$

Metric Conversion

King	Henry	Died	Unusually	Drinking	Chocolate	Milk
Kilo	Hecto	Deca	* Unit *	Deci	Centi	Milli
 10 x 10 x 10 x LARGER than a unit	10 x 10 x LARGER than a unit	10 x LARGER than a unit	***Meter*** *(length)* ***Liter*** *(liquid volume)* ***Gram*** *(mass/weight)* **1 unit**	10 x SMALLER than a unit	10 x 10 x SMALLER than a unit	10 x 10 x 10 x SMALLER than a unit 
1 kilo = 1,000 units	1 hecto = 100 units	1 deca = 10 units		10 deci = 1 unit	100 centi = 1 unit	1,000 milli = 1 unit
km = kilometer kL = kiloliter kg = kilogram	hm = hectometer hL = hectoliter hg = hectogram	dam = decameter daL = decaliter dag = decagram	m = meter L = liter g = gram	dm = decimeter dL = deciliter dg = decigram	cm = centimeter cL = centiliter cg = centigram	mm = millimeter mL = milliliter mg = milligram
Example: 5 kilo	50 hecto	500 deca	5,000 units	50,000 deci	500,000 centi	5,000,000 milli

DIVIDE numbers by 10 if you are getting bigger (same as moving decimal point one space to the left)

MULTIPLY numbers by 10 if you are getting smaller (same as moving decimal point one space to the right)

Directions: Perform the following conversions as indicated.

Length

1. 70 cm to m =	**2. 49 cm to mm =**
3. 8 m to mm =	**4. 14.76 m to cm =**
5. 8500 cm to m =	**6. 250 mm to m =**
7. 68.9 cm to mm =	**8. 3.25 cm to mm =**
9. 59.8 mm to cm =	**10. 3.542 mm to cm =**
11. 5.3 km to m =	**12. 9.24 km to m =**
13. 27.500 m to km =	**14. 14.592 m to km =**
15. 2.4 km to cm =	**16. 1.95 km to cm =**

Volume and Mass

17. 6 L to ml =	**18. 4.1 L to ml =**
19. 8.7 L to ml =	**20. 12.5 L to ml =**
21. 925 ml to L =	**22. 412 ml to L =**
23. 8974 ml to L =	**24. 5639 ml to L =**
25. 8.4 L to ml =	**26. 2.79 L to ml =**
27. 8.64 ml to L =	**28. 4.53 ml to L =**
29. 576 cm^3 to ml =	**30. 892 cm^3 to ml =**
31. 2 cm^3 to ml =	**32. 3.1 cm^3 to ml =**

33. 8 cm x 7 cm x 6 cm = _____ cm^3 also = _____ ml

34. 4 cm x 9 cm x 12 cm = _____ cm^3 also = _____ ml

35. 15 cm x 12 cm x 5 cm = _____ cm^3 also = _____ ml

36. 32 cm x 28 cm x 17 cm = _____ cm^3 also = _____ ml

Convert:

35. 8000 g to kg =

36. 25,000 g to kg =

37. 5.2 kg to g =

38. 12.42 kg to g =

39. 4.2 g to mg =

40. One nickel weighs 5 grams. How many nickels are in 1 kilogram of nickels?