Name Answer Key Hour ____

Converting with Mole Quantities

(Honors Chemistry)

Convert the following substances and put your answer in the proper scientific notation. Show all work!

1. 4.75 mol Calcium hydroxide → Representative Particles $4.75\ mol\ Ca(OH)_2 \times \frac{6.02 \times 10^{23}\ FormU}{1\ mol}$	2.86×10^{24} FU $Ca(OH)_2$
2. 2.065×10^{24} atoms of Mercury → Moles $2.065 \times 10^{24}\ atoms \times \frac{1\ mol}{6.02 \times 10^{23}\ atoms}$	$3.430\ mol\ Hg$
3. 3.105 moles of nitrogen gas → grams $3.105\ mol\ N_2 \times \frac{28\ g}{1\ mol}$	$8.694 \times 10^{1}\ g\ N_2$
4. 9.75×10^{-2} grams Lead (IV) nitrate → Moles $9.75 \times 10^{-2}\ g\ Pb(NO_3)_4 \times \frac{1\ mol}{455\ g}$	2.14×10^{-4} mol $Pb(NO_3)_4$
5. 4.72 moles of CH_4 → liters *(Assume STP)* $4.72\ mol\ CH_4 \times \frac{22.4\ L}{1\ mol}$	$1.06 \times 10^{2}\ L\ CH_4$
6. 8.780×10^{4} liters NH_3 → Moles *(Assume STP)* $8.780 \times 10^{4}\ L\ NH_3 \times \frac{1\ mol}{22.4\ L}$	$3.920 \times 10^{3}\ mol\ NH_3$
7. 8.093 mol Dinitrogen pentoxide → Representative Particles $8.093\ mol\ N_2O_5 \times \frac{6.02 \times 10^{23}\ molecules}{1\ mol}$	4.872×10^{24} molecules N_2O_5
8. 2.04×10^{25} molecules of Water → Moles $2.04 \times 10^{25}\ molecules\ H_2O \times \frac{1\ mole}{6.02 \times 10^{23}\ molecules}$	$3.39 \times 10^{1}\ mol\ H_2O$

9. 3.11×10^2 moles of Na_3PO_4 → grams 3.11×10^2 mol Na_3PO_4 | 164-g / 1 mol	5.10×10^4 g Na_3PO_4
10. 6.04×10^{24} grams H_2O_2 → Moles 6.04×10^{24} g H_2O_2 | 1 mol / 34 g	1.78×10^{23} mol H_2O_2
11. 4.56 moles of CO_2 → liters *(Assume STP)* 4.56 mol CO_2 | 22.4-L / 1 mol	1.02×10^2 L CO_2
12. 5.43×10^6 liters of chlorine gas → Moles *(Assume STP)* 5.43×10^6 L Cl_2 | 1 mol / 22.L-L	2.42×10^5 mol Cl_2
13. 23.67 mol Magnesium → Representative Particles 23.67 mol Mg | 6.02×10^{23} atoms / 1 mol	1.425×10^{25} atoms Mg
14. 6.9×10^{20} formula units of Cobalt (III) sulfate → Moles 6.9×10^{20} Form $Co_2(SO_4)_3$ | 1 mole / 6.02×10^{23} # Form u.	1.1×10^{-3} mol $Co_2(SO_4)_3$
15. 9.4 moles of Dicarbon hexahydride → grams 9.4 mol C_2H_6 | 30-g / 1 mol	2.8×10^2 -g C_2H_6
16. 8.780×10^3 grams NH_3 → Moles 8.780×10^3 g NH_3 | 1 mol / 17g	5.165×10^2 mol NH_3
17. 3.105 moles of fluorine gas→ liters *(Assume STP)* 3.105 mol F_2 | 22.4 L / 1 mol	6.955×10^1 - L F_2
18. 9.75×10^{-2} liters C_3H_6 → Moles *(Assume STP)* 9.75×10^{-2} L C_3H_6 | 1 mol / 22.4 -L	4.35×10^{-3} mol C_3H_6