Name: $\qquad$

## Stoichiometry: Mole-Mole Problems

1. $\mathrm{N}_{2}+3 \mathrm{H}_{2} \rightarrow 2 \mathrm{NH}_{3}$

How many moles of hydrogen are needed to completely react with 2.00 moles of nitrogen?
2. $2 \mathrm{KClO}_{3} \rightarrow 2 \mathrm{KCl}+3 \mathrm{O}_{2}$

How many moles of oxygen are produced by the decomposition of 6.00 moles of potassium chlorate?
3. $\mathrm{Zn}+2 \mathrm{HCl} \rightarrow \mathrm{ZnCl}_{2}+\mathrm{H}_{2}$

How many moles of hydrogen are produced from the reaction of 3.00 moles of zinc with an excess of hydrochloric acid?
4. $\mathrm{C}_{3} \mathrm{H}_{8}+5 \mathrm{O}_{2} \rightarrow 3 \mathrm{CO}_{2}+4 \mathrm{H}_{2} \mathrm{O}$

How many moles of oxygen are necessary to react completely with 4.00 moles of propane $\left(\mathrm{C}_{3} \mathrm{H}_{8}\right)$ ?
5. $\mathrm{K}_{3} \mathrm{PO}_{4}+\mathrm{Al}\left(\mathrm{NO}_{3}\right)_{3} \rightarrow 3 \mathrm{KNO}_{3}+\mathrm{AlPO}_{4}$

How many moles of potassium nitrate are produced when 2.00 moles of potassium phosphate react with 2.00 moles of aluminum nitrate? ( 2 problems, determine for each reactant)

