## Mole - Mole Conversions

Complete the following mole to mole conversions. Show Work:

1) Given the balanced equation $\left.\mathrm{CH}_{4}(\mathrm{~g})+2 \mathrm{O}_{2} \mathrm{~g}\right)---\mathrm{CO}_{2}(\mathrm{~g})+2 \mathrm{H}_{2} \mathrm{O}(\mathrm{g})$, find each of the following:
a) How many moles of carbon dioxide are formed when 40 moles of oxygen are consumed?
b) How many moles of methane are needed to form 200 moles of water?
c) How many moles of oxygen combine with 0.050 moles methane?
2) Nitrogen monoxide ( NO ) reacts with oxygen to form nitrogen dioxide $\left(\mathrm{NO}_{2}\right)$. How many moles of oxygen combine with 500 moles of NO?

Balanced Equation:
3) Aqueous calcium chloride reacts with aqueous sodium phosphate to make solid calcium phosphate and aqueous sodium chloride. If 8.2 moles of calcium chloride are allowed to react, how many moles of the other 3 components are either used or made?

Balanced Equation:
4) How many moles of Mg will be needed to react with 0.915 moles of $\mathrm{AlCl}_{3}$, according to the reaction: $\ldots \mathrm{AlCl}_{3}(\mathrm{aq})+\ldots \mathrm{Mg}(\mathrm{s})-->\ldots \mathrm{MgCl}_{2}(\mathrm{aq})+\ldots \ldots \mathrm{Al}(\mathrm{s})$

## Mole - Mole Conversions

Name: $\qquad$
Complete the following mole to mole conversions. Show Work:

1) Given the balanced equation $2 \mathrm{C}_{4} \mathrm{H}_{10}(\mathrm{~g})+13 \mathrm{O}_{2}(\mathrm{~g})$------> $8 \mathrm{CO}_{2}(\mathrm{~g})+10 \mathrm{H}_{2} \mathrm{O}(\mathrm{g})$ find each of the following:
a) How many moles of carbon dioxide are formed when 4.0 moles of oxygen are consumed?
b) How many moles of butane are needed to form 130 moles of water?
c) How many moles of oxygen combine with 3.5 moles butane?
2) Solid sodium reacts with oxygen gas to form solid sodium oxide. How many moles of oxygen combine with 26 moles of sodium?

Balanced Equation:
3) Aqueous zinc chloride reacts with solid aluminum to make solid zinc and aqueous aluminum chloride. If 8.2 moles of zinc chloride are allowed to react, how many moles of the other 3 components are either used or made?

Balanced Equation:
4) How many moles of $\mathrm{CuCl}_{2}$ will be needed to react with 0.519 moles of $\mathrm{Rb}_{3} \mathrm{PO}_{4}$, according to the reaction:

$$
\ldots \mathrm{CuCl}_{2}(\mathrm{aq})+\ldots \mathrm{Rb}_{3} \mathrm{PO}_{4}(\mathrm{aq})----->\ldots \quad \mathrm{RbCl}(\mathrm{aq})+\ldots \mathrm{Cu}_{3}\left(\mathrm{PO}_{4}\right)_{2}(\mathrm{~s})
$$

Answers: 1a) $2.5 \mathrm{~mol} \mathrm{CO}_{2}$
2) $6.5 \mathrm{~mol} \mathrm{O}_{2}$
4) $0.779 \mathrm{~mol} \mathrm{CuCl}_{2}$

