## Stoichiometry

The part of chemistry that deals
with proportions of substances
In chemical reactions
$\left.\begin{array}{|ccc}\hline 2 \mathrm{Na}+\mathrm{Cl}_{2} \rightarrow & 2 \mathrm{NaCl} \\ \begin{array}{c}2 \text { atoms } \\ \times 6.02 \times 10^{23}\end{array} & \begin{array}{c}\text { molecule } \\ \times 6.02 \times 10^{23}\end{array} & \begin{array}{c}2 \mathrm{molecules} \\ \times 6.02 \times 10^{23}\end{array} \\ \hline 2 \mathrm{~mol} & \begin{array}{c}1 \mathrm{~mol} \\ \times 23.0 \mathrm{~g} / \mathrm{mol}\end{array} & \begin{array}{c}2 \mathrm{~mol} \\ \times 71.0 \mathrm{~g} / \mathrm{mol}\end{array} \\ \hline 468.5 \mathrm{~g} / \mathrm{mol}\end{array}\right]$


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\mathrm{Na}+\mathrm{O}_{2} \rightarrow \mathrm{Na}_{2} \mathrm{O}
$$

a) How many moles of $\mathrm{Na}_{2} \mathrm{O}$ can be formed from 10.0 mol Na (with excess $\mathrm{O}_{2}$ )?
b) How many moles of $\mathrm{O}_{2}$ would be needed to produce $83 \mathrm{~mol} \mathrm{Na} \mathrm{N}_{2} \mathrm{O}$ ?
c) How many grams of $\mathrm{O}_{2}$ are needed to react with 10.0 mol Na ?
d) How many moles of $\mathrm{Na}_{2} \mathrm{O}$ can be produced from $4.28 \mathrm{~g} \mathrm{O}_{2}$ ?
e) How many grams of $\mathrm{O}_{2}$ are needed to react with 3.57 g Na ?

