Stoichiometry – Study Guide

*section 4.3 in OpenStax*

**Stoichiometry**

Stoichiometry calculations use the coefficients in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chemical equation.

Read about mole-to-mole conversions and then write conversions for each of the following based on the balanced equation shown:

2 CH3OH + 3 O2 🠢 2 CO2 + 4 H2O

Using dimensional analysis, convert from 3.56 moles of CH3OH to the number of moles of O2 required.

*(ans: 5.34 moles O2)*

Calculate the number of moles of water formed when 15.0 moles of O2 completely react.

*(ans: 20.0 moles H2O)*

You will also need to be able to calculate more complex stoichiometry problems, such as the one below.

mass A moles A moles B mass B

The above converts from the mass of one substance in a balanced equation to the mass of another substance.

Use Figure 4.10 to identify the conversion factor used in the following concept maps.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Moles A |  | Moles B |  | Mass B |  | Volume pure substance B |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Mass A |  | Moles A |  | Moles B |  | Particles of B |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Volume solution A |  | Moles A |  | Moles B |  | Volume solution B |

***Watch the video tutorial on*** [Stoichiometry](https://www.youtube.com/watch?v=_w92AZzxCQ4&feature=youtu.be)

**End of Chapter 4 Practice Problems**

#47, 49, 51, 57

For detailed solutions to these problems, go to the [OpenStax website](https://openstaxcollege.org/textbooks/chemistry/resources) and download the “Student Answer and Solution Guide.”