**Skill 29.01 Problem 1**

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| Carbon monoxide (CO) and oxygen gas (O2) react form carbon dioxide (CO2)   1. Write a balanced reaction for this process 2. Draw pictures to show the formation of carbon dioxide from its reactants. |
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**Skill 29.02 Problem 1**

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| For the reaction represented by  N2*(g)* + 3H2*(g)* 🡪 2NH3*(g)*  At constant temperature and pressure, which of the following statements is/are true?   1. 6.022 x 1023 molecules of nitrogen and 3 x (6.022 x 1023 ) molecules of hydrogen react to yield 2 x (6.022 x 1023 ) molecules of ammonia 2. 1 molecule of nitrogen and 3 molecules of hydrogen react to yield 2 molecules of ammonia 3. 1 atom of nitrogen and 3 atoms of hydrogen react to yield 2 atoms of ammonia 4. 1 mole of nitrogen and 3 moles of hydrogen react to yield 2 moles of ammonia 5. 28 grams of nitrogen and 6 grams of hydrogen react to yield 34 grams of ammonia |
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**Skill 29.03 Problem 1**

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| Carbon monoxide (CO) and oxygen gas (O2) react form carbon dioxide (CO2). On the graph provided, draw a sketch of how the reactants and products change over time. |
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**Skill 29.04 Problem 1**

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| For each of the following,   1. Write a balanced reaction for this process 2. Draw a picture of what happens when 2 moles of nitrogen gas react with 3 moles of hydrogen gas. 3. Identify the limiting and excess reactant |
| 2 moles of nitrogen gas (N2) and 3 moles of hydrogen gas (H2) react to form ammonia (NH3). |
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| 2 moles of NO and 2 moles of O2 react to form NO2 |
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| 2 moles of P4 and 5 moles of O2 react to form P2O5 |
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**Skill 29.04 Problem 2**

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| Nitrogen gas (N2) and hydrogen gas (H2) react to form ammonia (NH3). Given 2 moles of nitrogen and 3 moles of hydrogen, draw a sketch of how the reactants and products change over time. |
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