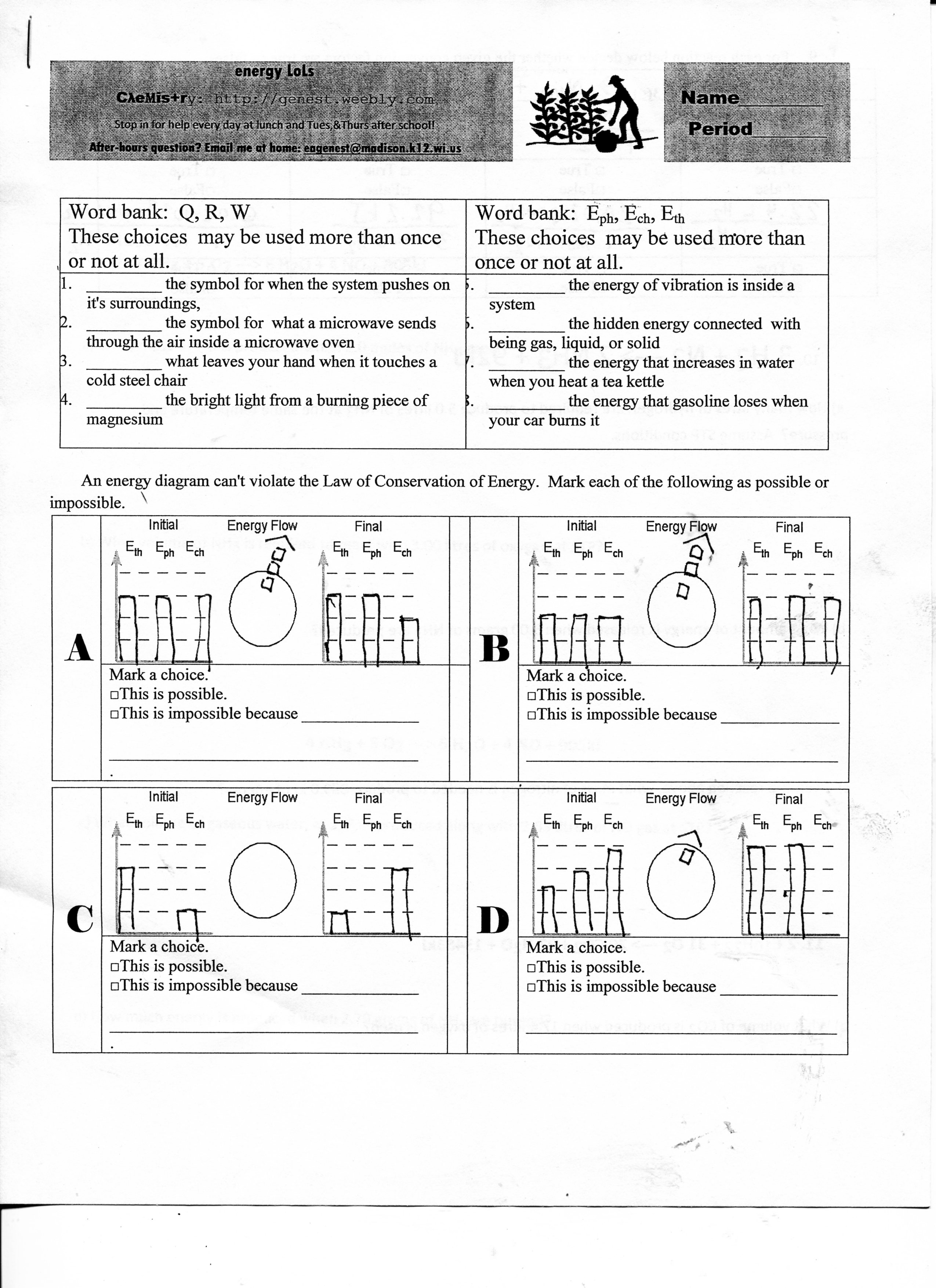
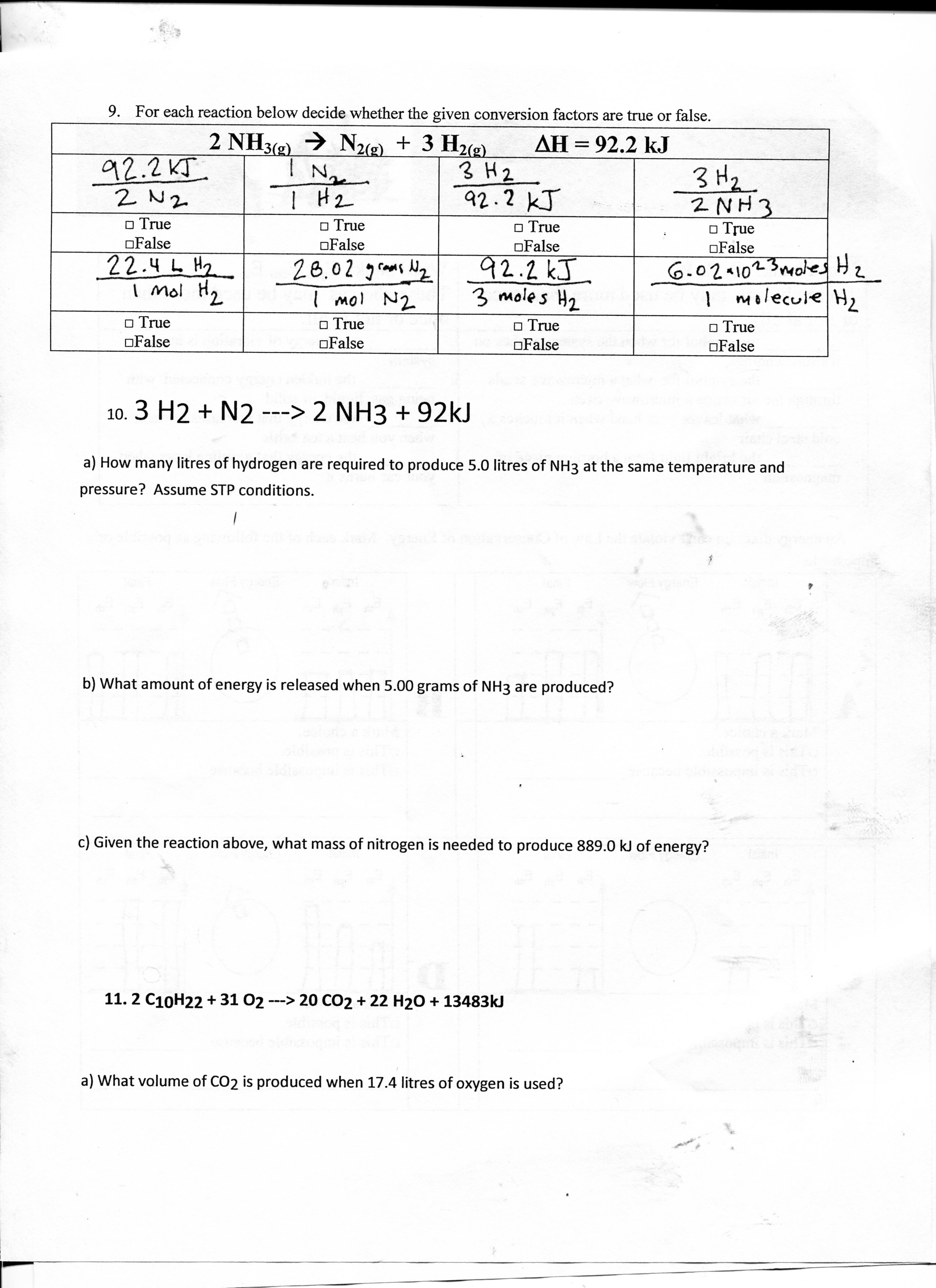
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| --- | --- | --- |
| energy LoLs  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues,&Thurs after school!  After-hours question? Email me at home: [eagenest@madison.k12.wi.us](mailto:eagenest@madison.k12.wi.us) |  | Name\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_ |

|  |  |
| --- | --- |
| Word bank: Q, R, W  These choices may be used more than once or not at all. | Word bank: Eph, Ech, Eth  These choices may be used more than once or not at all. |
| 1. \_\_\_\_\_\_\_\_\_ the symbol for when the system pushes on it's surroundings, 2. \_\_\_\_\_\_\_\_\_ the symbol for what a microwave sends through the air inside a microwave oven 3. \_\_\_\_\_\_\_\_\_ what leaves your hand when it touches a cold steel chair 4. \_\_\_\_\_\_\_\_\_ the bright light from a burning piece of magnesium | 1. \_\_\_\_\_\_\_\_\_ the energy of vibration is inside a system 2. \_\_\_\_\_\_\_\_\_ the hidden energy connected with being gas, liquid, or solid 3. \_\_\_\_\_\_\_\_\_ the energy that increases in water when you heat a tea kettle 4. \_\_\_\_\_\_\_\_\_ the energy that gasoline loses when your car burns it |

An energy diagram can't violate the Law of Conservation of Energy. Mark each of the following as possible or impossible.



1. For each reaction below decide whether the given conversion factors are true or false.



1. 3 H2 + N2 ---> 2 NH3 + 92kJ

a) How many litres of hydrogen are required to produce 5.0 litres of NH3 at the same temperature and pressure? Assume STP conditions.

b) What amount of energy is released when 5.00 grams of NH3 are produced?

c) Given the reaction above, what mass of nitrogen is needed to produce 889.0 kJ of energy?

1. **2 C10H22 + 31 O2 ---> 20 CO2 + 22 H2O + 13483kJ**

a) What volume of CO2 is produced when 17.4 litres of oxygen is used? Assume STP conditions.

b) What amount of energy is released when 1.00 gram of C10H22 is burned?

1. **4 NH3 + 5 O2 ---> 6 H2O + 4 NO + 905kJ**

a) What mass of NO is produced when 2.0 moles of NH3 react?

b) What volume of NH3 is required to react with 3.00 litres of oxygen at STP?

c) What volume of gaseous water, at STP, is produced along with 2.83 litres of NO gas at STP?

d) How much energy is produced when 2.70 grams of NH3 are burned?