

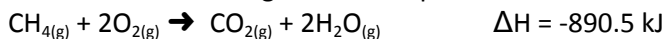
ΔH Notation and related questions

1. Numerical response question

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Left justify your answer in the boxes provided.

Consider the following balanced equation



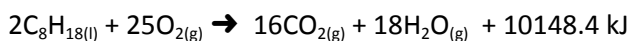
When 15.0 g of methane is burned, _____ kJ of energy will be released.

2. Numerical response question

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Left justify your answer in the boxes provided.

Consider the balanced equation given below.



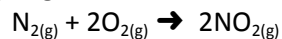
The enthalpy change for the combustion of 1.0 g of octane ($\text{C}_8\text{H}_{18(l)}$) is $\pm$ _____ kJ

3. Numerical response question

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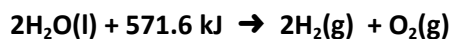
Left justify your answer in the boxes provided.

$\text{NO}_{2(g)}$ is a toxic reddish-brown gas. At high temperatures in automobile engines, nitrogen gas and oxygen gas in the air react to produce nitrogen dioxide gas as follows:



If 104 kJ of energy are absorbed in this endothermic reaction, then _____ g of nitrogen is reacted.

4. Use the following reaction to answer the question below.



If one mole of water is formed from its elements, the ΔH is _____ kJ.

a	-571.6
b	+571.6
c	+285.8
d	-285.8

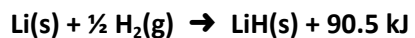
5. Consider the reaction below.



The mass of $\text{NO}(\text{g})$ consumed when 50.0 kJ of energy is produced is _____

a	25.8
b	12.9 g
c	20.3 g
d	40.6 g

6. Consider the following formation reaction



The amount of heat necessary to **decompose** 15.9 g of $\text{LiH}(\text{s})$ into $\text{Li}(\text{s})$ and $\text{H}_2(\text{g})$ at standard conditions is _____.

a	90.5 kJ
b	181 kJ
c	1.44 MJ
d	15.9 kJ

7. In the combustion of hydrogen, the amount of energy released depends on _____

a	Molar mass of hydrogen
b	Oxidation number of hydrogen
c	Amount of hydrogen used
d	Molar enthalpy of formation of hydrogen gas

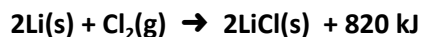
8. Consider the reaction of paraffin ($C_{25}H_{52}(s)$) given below.



The energy released by paraffin in this reaction is called the molar enthalpy of _____.

a	Formation
b	Combustion
c	Synthesis
d	Decomposition

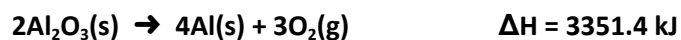
9. Consider the equation below.



The molar heat of formation of $LiCl(s)$ is _____ $\frac{kJ}{mol}$

a	+820
b	+410
c	-410
d	-820

10. Consider the following equation:



What change in energy occurs when one mole of aluminum oxide is formed from its elements?

a	1675.7 kJ of energy is absorbed
b	1675.7 kJ of energy is released
c	3351.4 kJ of energy is absorbed
d	3351.4 kJ of energy is released

11. How much heat is absorbed in the formation of 1.61 g of ethene ($\text{C}_2\text{H}_4(\text{g})$) from its elements?

a	3.01 kJ
b	32.5 kJ
c	84.2 kJ
d	522 kJ

12. Consider the following information.

$\text{SiF}_4(\text{g})$ has a molar heat of formation of $-1617 \frac{\text{kJ}}{\text{mol}}$
$\text{SiCl}_4(\text{l})$ has a molar heat of formation of $-688 \frac{\text{kJ}}{\text{mol}}$
$\text{SiBr}_4(\text{l})$ has a molar heat of formation of $-458 \frac{\text{kJ}}{\text{mol}}$
$\text{SiI}_4(\text{s})$ has a molar heat of formation of $-190 \frac{\text{kJ}}{\text{mol}}$

Which Silicon halide is the most stable?

a	$\text{SiF}_4(\text{g})$
b	$\text{SiCl}_4(\text{l})$
c	$\text{SiBr}_4(\text{l})$
d	$\text{SiI}_4(\text{s})$

Solutions:

1. 832
2. 44.
3. 144
4. d
5. a
6. b
7. c
8. b
9. c
10. b
11. a
12. a