

AP Chem Ch. 5 Study Sheet 3

Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. The value of ΔH° for the reaction below is +128.1 kJ:



How many kJ of heat are consumed when 5.10 g of $\text{H}_2(\text{g})$ is formed as shown in the equation?

- 162
 - 62.0
 - 128
 - 653
 - 326
2. The value of ΔH° for the reaction below is +128.1 kJ:



How many kJ of heat are consumed when 5.10 g of $\text{CO}(\text{g})$ is formed as shown in the equation?

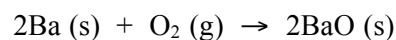
- 0.182
 - 162
 - 8.31
 - 23.3
 - 62.0
3. The value of ΔH° for the reaction below is +128.1 kJ:



How many kJ of heat are consumed when 5.75 g of $\text{CO}(\text{g})$ is formed as shown in the equation?

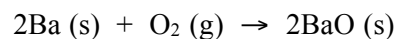
- 23.3
- 62.0
- 26.3
- 162
- 8.3

4. The value of ΔH° for the reaction below is -1107 kJ:



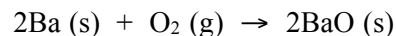
How many kJ of heat are released when 5.75 g of $\text{Ba}(\text{s})$ reacts completely with oxygen to form $\text{BaO}(\text{s})$?

- 96.3
 - 26.3
 - 46.4
 - 23.2
 - 193
5. The value of ΔH° for the reaction below is -1107 kJ:



How many kJ of heat are released when 5.75 g of $\text{BaO}(\text{s})$ is produced?

- 56.9
 - 23.2
 - 20.8
 - 193
 - 96.3
6. The value of ΔH° for the reaction below is -1107 kJ:



How many kJ of heat are released when 15.75 g of $\text{Ba}(\text{s})$ reacts completely with oxygen to form $\text{BaO}(\text{s})$?

- 20.8
- 63.5
- 114
- 70.3
- 35.1

7. The molar heat capacity of a compound with the formula C_2H_6SO is $88.0 \text{ J/mol}\cdot\text{K}$. The specific heat of this substance is _____ $\text{J/g}\cdot\text{K}$.
- 88.0
 - 1.13
 - 4.89
 - 6.88×10^3
 - 88.0
8. A sample of aluminum metal absorbs 9.86 J of heat, upon which the temperature of the sample increases from 23.2°C to 30.5°C . Since the specific heat capacity of aluminum is $0.90 \text{ J/g}\cdot\text{K}$, the mass of the sample is _____ g.
- 72
 - 1.5
 - 65
 - 8.1
 - 6.6
9. The specific heat capacity of lead is $0.13 \text{ J/g}\cdot\text{K}$. How much heat (in J) is required to raise the temperature of 15 g of lead from 22°C to 37°C ?
- 2.0
 - 0.13
 - 5.8×10^{-4}
 - 29
 - 0.13
10. The temperature of a 15-g sample of lead metal increases from 22°C to 37°C upon the addition of 29.0 J of heat. The specific heat capacity of the lead is _____ $\text{J/g}\cdot\text{K}$.
- 7.8
 - 1.9
 - 29
 - 0.13
 - 29
11. The specific heat of bromine liquid is $0.226 \text{ J/g}\cdot\text{K}$. The molar heat capacity (in $\text{J/mol}\cdot\text{K}$) of bromine liquid is _____.
- 707
 - 36.1
 - 18.1
 - 9.05
 - 0.226
12. The specific heat of liquid bromine is $0.226 \text{ J/g}\cdot\text{K}$. How much heat (J) is required to raise the temperature of 10.0 mL of bromine from 25.00°C to 27.30°C ? The density of liquid bromine: 3.12 g/mL .
- 5.20
 - 16.2
 - 300
 - 32.4
 - 10.4
13. The ΔH for the solution process when solid sodium hydroxide dissolves in water is 44.4 kJ/mol . When a 13.9-g sample of NaOH dissolves in 250.0 g of water in a coffee-cup calorimeter, the temperature increases from 23.0°C to _____ $^\circ\text{C}$. Assume that the solution has the same specific heat as liquid water, i.e., $4.18 \text{ J/g}\cdot\text{K}$.
- 35.2°C
 - 24.0°C
 - 37.8°C
 - 37.0°C
 - 40.2°C
14. ΔH for the reaction
- $$\text{IF}_5(\text{g}) \rightarrow \text{IF}_3(\text{g}) + \text{F}_2(\text{g})$$
- is _____ kJ, give the data below.
- $$\text{IF}(\text{g}) + \text{F}_2(\text{g}) \rightarrow \text{IF}_3(\text{g}) \Delta H = -390 \text{ kJ}$$
- $$\text{IF}(\text{g}) + 2 \text{F}_2(\text{g}) \rightarrow \text{IF}_5(\text{g}) \Delta H = -745 \text{ kJ}$$
- +355
 - 1135
 - +1135
 - +35
 - 35